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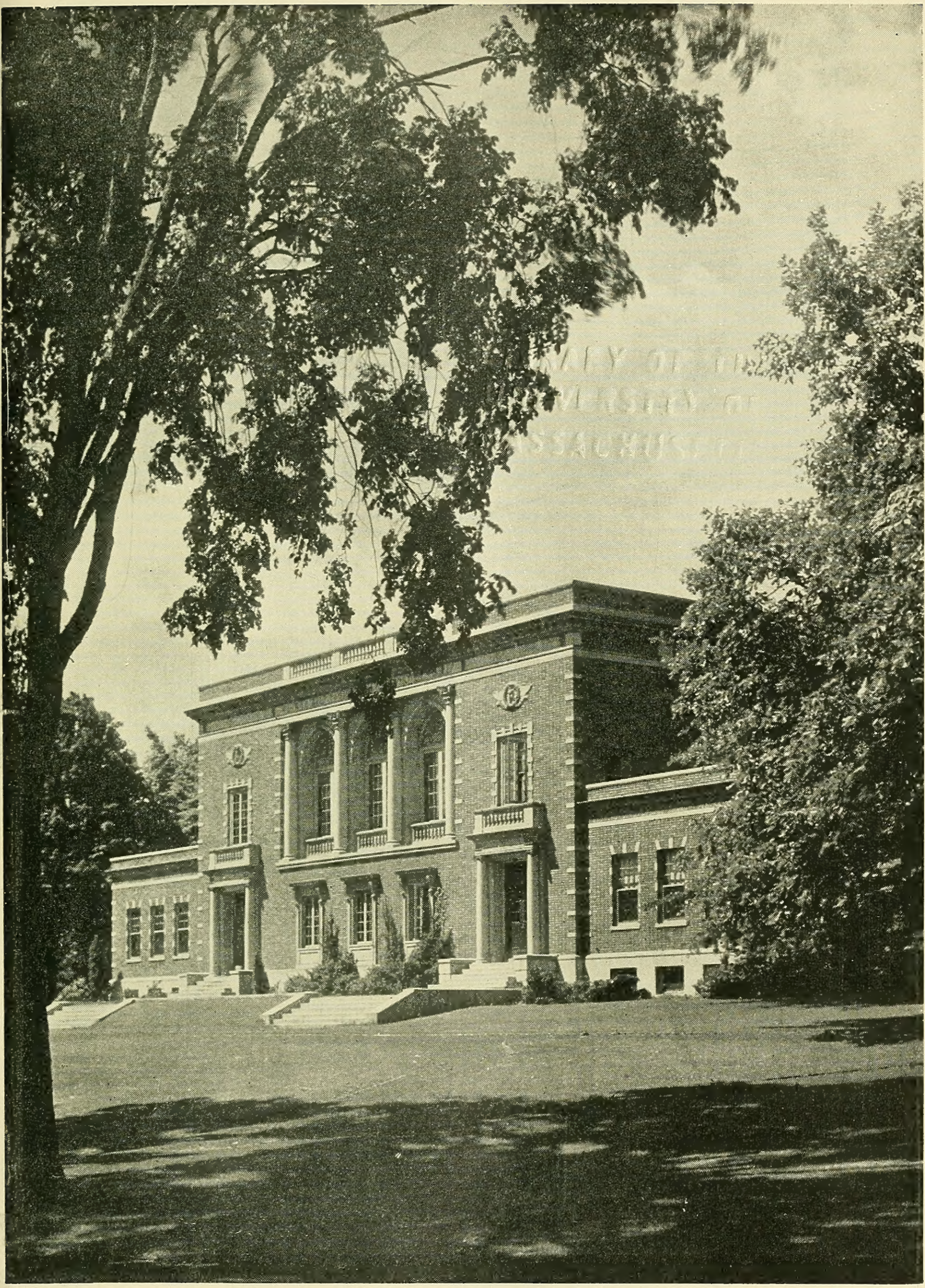

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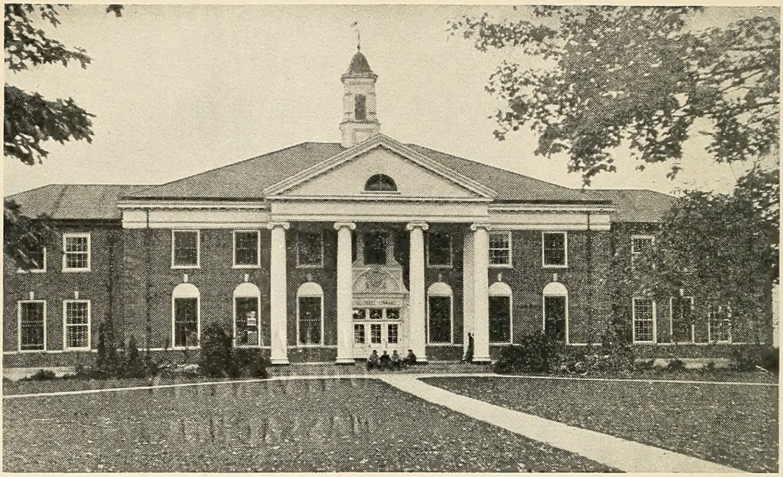

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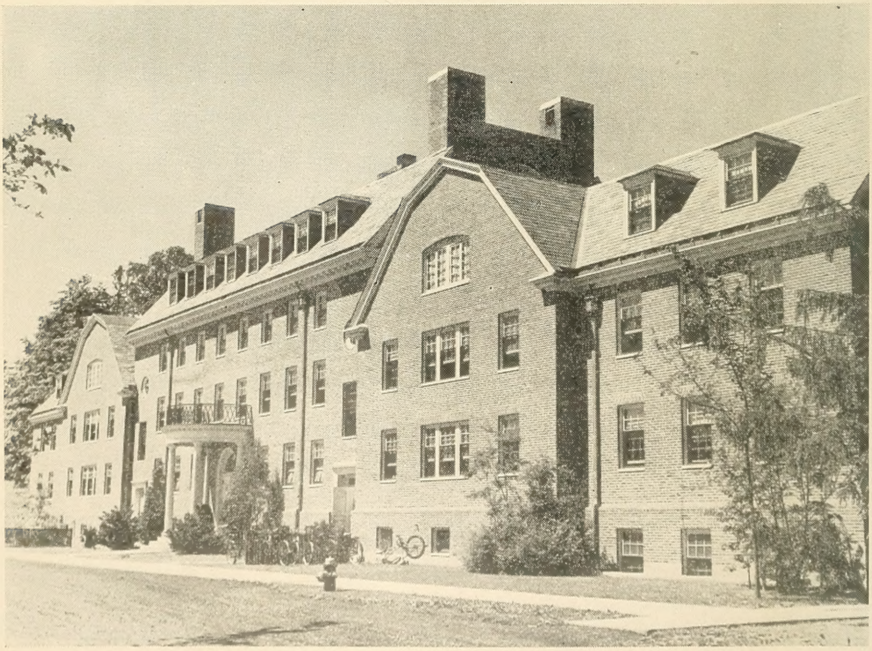

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Bulletin

MASSACHUSETTS STATE COLLEGE

CATALOGUE OF THE COLLEGE

1947-48

AMHERST, MASSACHUSETTS

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FOREWORD

This Catalogue of the College presents announcements concerning courses, admission, etc., for the sessions of 1947-48.

The College reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue.

◆

The College Catalogue for the sessions 1947-48 is part of the Eighty-fourth Annual Report of the Massachusetts State College and as such is part II of Public Document 31. (Sec. 8, Chapter 75, of the General Laws of Massachusetts.)

COLLEGE CALENDAR

1947

January 3, Friday, 8:00 A.M. Classes resume.

January 27, Monday, 8:00 A.M. to February 1, Saturday. Final examinations.

February 1, Saturday. First Semester ends.

February 5, Wednesday, 8:00 A.M. Second Semester begins.

February 22, Saturday. Washington's Birthday. No college exercises.

March 29, Saturday, 12:00 M. to April 7, Monday, 8:00 A.M. Easter Recess.

April 19, Saturday. Patriot's Day. No college exercises.

May 30, Friday. Memorial Day. No college exercises.

May 31, Saturday to June 6, Friday. Final examinations.

June 6, Friday to June 9, Monday. Commencement.

June 13, Friday to June 14, Saturday. Entrance examinations.

June 23, Monday, 8:00 A.M. Summer Session opens.

July 4, Friday. Independence Day. No college exercises.

August 2, Saturday, 12:00 M. End of first six weeks of Summer Session.

August 4, Monday, 8:00 A.M. Summer Session opens for second half.

September 1. Labor Day. No college exercises.

September 13, Saturday, 12:00 M. End of Summer Session.

September 22, Monday, 9:00 A.M. First Semester begins for Freshmen.

September 24, Wednesday, 8:00 A.M. Registration of students other than Freshmen.

September 24, Wednesday, 2:00 P.M. Opening Convocation.

October 13, Monday. Columbus Day Celebration. No college exercises.

November 11, Tuesday. Armistice Day. No college exercises.

November 26, Wednesday, 12:00 M. to December 1, Monday, 8:00 A.M. Thanksgiving Recess.

December 19, Friday, 12:00 M. to January 5, Monday, 8:00 A.M. Christmas Recess.

1948

January 5, Monday, 8:00 A.M. Classes resume.

January 23, Friday, 12:00 M. to January 31, Saturday, 12:00 M. Final examinations.

January 31, Saturday. First Semester ends.

February 4, Wednesday, 8:00 A.M. Second Semester begins.

February 23, Monday. Washington's Birthday Celebration. No college exercises.

March 25, Thursday, 12:00 M. to March 31, Wednesday, 12:00 M. Spring Recess.

April 19, Monday. Patriot's Day. No college exercises.

May 26, Wednesday, 12:00 M. to June 3, Thursday, 5:00 P.M. Final examinations.

June 4, Friday to June 7, Monday. Commencement.

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Organization of January, 1946

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John William Haigis, Greenfield	1947
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Philip Ferry Whitmore, B.S. (Massachusetts State College), Sunderland	1948
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Richard Saltonstall, A.B. (Harvard University), Sherborn	1949
Ernest Hoftyzer, B.S. (Ohio State University), Wellesley	1950
Alden Chase Brett, B.S. (Massachusetts State College), Belmont	1950
Mrs. Elizabeth Laura McNamara (Graduate Teacher's College), Cambridge	1951
Leonard Carmichael, S.B., SC.D. (Tufts College), PH.D. (Harvard University), LITT.D. (Portia), LL.D. (Boston University, Colgate University, Northeastern University, Rhode Island State College, St. Lawrence University), Medford	1951
Mrs. Joseph Swan Leach, Walpole	1952
Ralph Fred Taber, B.S. (Massachusetts State College), A.M. (Harvard University), West Newton	1952
John Martin Deely, A.B. (Williams College), Lee	1953
Clifford Chesley Hubbard, A.B., PH.D. (Brown University), A.M. (Harvard University), Mansfield	1953

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[1] The President of the College and the Chairman of the Board are ex-officio members of each committee.

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JOSEPH LOTHROP KELLEY, *Technical Assistant.* Cranberry Station, East Wareham

CLIFFORD VAUGHAN KIGHTLINGER, B.S., M.S. (Grove City College), *Research Professor of Agronomy.* Stockbridge Hall

RAY MILTON KOON, B.S. (Pennslyvania State College), M.S. (University of Delaware), *Research Professor of Horticulture; Head of Waltham Field Station.* Waltham Field Station

KAROL JOSEPH KUCINSKI, B.S., M.S., PH.D. (Massachusetts State College), *Research Assistant in Agronomy.* Stockbridge Hall

WILLIAM HENRY LACHMAN, JR., B.S., M.S. (Pennsylvania State College), *Assistant Research Professor of Vegetable Gardening.* French Hall

DOROTHY ELLEN MALLORY, *Technical Assistant, Experiment Station.* East Experiment Station

JOHN EARL WILLARD MCCONNELL, B.S. (Queen's University), M.S., PH.D. (Massachusetts State College), *Assistant Research Professor of Food Technology.* Food Technology Laboratory

MALCOLM ARTHUR MCKENZIE, PH.B., A.M., PH.D. (Brown University), *Research Professor of Botany.* Clark Hall

GLADYS INEZ MINER, *Herbarium Curator.* Clark Hall

WILLIAM SAMUEL MUELLER, B.S. (University of Illinois), M.S. (Rutgers University), PH.D. (Massachusetts State College), *Assistant Research Professor of Dairy Industry.* Flint Laboratory

MARGARET HELEN O'DONNELL, *Secretary to the Director.* East Experiment Station

LEONARD RAYMOND PARKINSON, B.S. (University of New Hampshire), *Research Assistant in Home Economics Nutrition.* Nutrition Laboratory

DAVID ROZMAN, B.S., M.A. (University of Wisconsin), PH.D. (Northwestern University), *Research Professor of Economics.* North College

RUBY SANBORN, A.B. (Mount Holyoke College), *Research Assistant in Poultry Husbandry.* Stockbridge Hall

JACOB KINGSLEY SHAW, B.S. (University of Vermont), M.S., PH.D. (Massachusetts State College), *Research Professor of Pomology.* French Hall

RUTH EVELYN SHERBURNE, B.S. (Simmons College), *Research Assistant in Economics.* North College

DALE HAROLD SIELING, B.S., M.S. (Kansas State College), PH.D. (Iowa State College), *Research Professor of Chemistry.* Goessmann Laboratory

WALTER DRURY WEEKS, B.S., M.S. (University of New Hampshire), PH.D. (Massachusetts State College), *Research Assistant in Pomology.* French Hall

MRS. ANNE WILLIAMS WERTZ, A.B. (Connecticut College), *Assistant Research Professor in Home Economics Nutrition.* *Nutrition Laboratory*

WARREN DRAPER WHITCOMB, B.S. (Massachusetts State College), *Research Professor of Entomology.* Waltham Field Station

HAROLD EVERETT WHITE, B.S., M.S. (Purdue University), *Assistant Research Professor of Floriculture.* Waltham Field Station

HRANT MISSAK YEGIAN, B.S. (Iowa State College), *Research Assistant in Agronomy.* Stockbridge Hall

ROBERT ELLSWORTH YOUNG, B.S.A. (Oklahoma Agricultural College), M.S. (Ohio State University), *Assistant Research Professor of Vegetable Gardening.* Waltham Field Station

Heads of those departments functioning in the Experiment Station although not listed here are also recognized as members of the staff.

REGULATORY SERVICE STAFF

JESSIE LOUISE ANDERSON, *Research Assistant, Seeds* West Experiment Station

JOSEPH BART, B.S. (Massachusetts State College), *Junior Chemist, Feeds and Fertilizers.* West Experiment Station

KENNETH LLOYD BULLIS, D.V.M. (Iowa State College), M.S. (Massachusettts State College), *Research Professor, Poultry Disease.* Paige Laboratory

MIRIAM KEITH CLARKE, A.B. (Mount Holyoke College), M.S. (Massachusetts State College), *Research Assistant, Poultry Disease.* Paige Laboratory

*LEO VINCENT CROWLEY, B.S. (Massachusetts State College), *Assistant Chemist Feeds and Fertilizers.*

EARLE BENNET CROSBY, *Laboratory Assistant, Poultry Disease.* Paige Laboratory

MRS. MARTHA BEAM DEVOS, B.A. (Westhampton College), *Research Assistant in Veterinary Science.* Paige Laboratory

OLIVER SIMEON FLINT, B.S. (Massachusetts State College), *Assistant Professor, Poultry Disease.* Paige Laboratory

WILLIAM KENNETH HARRIS, D.V.M. (Ohio State University), *Research Professor, Veterinary Science.* Paige Laboratory

JAMES THOMAS HOWARD, *Inspector, Feeds and Fertilizers.* West Experiment Station

JOHN WILLIAM KUZMESKI, B.S. (Massachusetts State College), *Chief of Laboratory, Feeds, Fertilizers and Seeds.* West Experiment Station

FREDERICK ADAMS MCLAUGHLIN, B.S. (Massachusetts State College), *Assistant Professor, Seeds.* West Experiment Station

JOSEPH ANTHONY MARTEL, *Technical Assistant, Feeds and Fertilizers.* West Experiment Station

OLGA OLESIUK, B.A. (Mount Holyoke College), *Research Assistant, Poultry Disease.* Paige Laboratory

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* On leave of absence for military service.

Chapman Tyson Smith, b.s., m.s. (Princeton University), *Assistant Chemist, Feeds and Fertilizers.* West Experiment Station

Albert Francis Spelman, b.s. (Massachusetts State College), *Senior Chemist, Feeds and Fertilizers.* West Experiment Station

Francis George Sperling, v.m.d. (University of Pennsylvania), *Assistant Research Professor of Infectious Bronchitis.* Paige Laboratory

Henry Van Roekel, d.v.m. (Iowa State College), m.s. (Virginia Polytechnic Institute), ph.d. (Yale University), *Research Professor of Veterinary Science.* Paige Laboratory

INDUSTRIAL FELLOWS

Arthur Chester Avery, b.s. (Massachusetts State College), *Industrial Fellow in Food Technology.* Food Technology Laboratory

John Paul Crimmins, b.s. (Massachusetts State College), *Industrial Fellow in Food Technology.* Food Technology Laboratory

Marie Skarzynska Gutowska, Candidate in Science (University of Kiev), ph.d. (University of Warsaw), *Industrial Fellow in Poultry Husbandry.* Stockbridge Hall

William James Hart, Jr., b.s. (Massachusetts State College), *Industrial Fellow in Food Technology.* Food Technology Laboratory

Dale Albert Hinkle. b.s., m.s. (Oklahoma A. & M. College), *Industrial Fellow in Agronomy.* Stockbridge Hall

Arthur Milton Kaplan, b.s. (Massachusetts State College), m.s. (Washington State College), *Industrial Fellow in Food Technology.* Food Technology Laboratory

Genevieve Katherine Lekarzyck, b.s. (Massachusetts State College), *Industrial Fellow in Food Technology.* Food Technology Laboratory

Victor Marcus Lewis, b.s. (Sydney University), *Industrial Fellow in Food Technology.* Food Technology Laboratory

Charles Donald MacCormack, Jr., b.s. (Massachusetts State College), *Industrial Fellow in Food Technology.* Food Technology Laboratory

Donald Bernard Seeley, b.s. (University of Connecticut), *Industrial Fellow in Dairy Industry.* Flint Laboratory

Courtney Emery Walker, b.s. (Langston University), *Industrial Fellow in Poultry Husbandry.* Stockbridge Hall

Paul Arthur White, b.s. (Massachusetts State College), *Industrial Fellow in Wildlife Management.* French Hall

EMPLOYEES OF FEDERAL GOVERNMENT WITH HEADQUARTERS AT MASSACHUSETTS STATE COLLEGE

ARTHUR BISHOP BEAUMONT, B.S. (Kentucky State University), PH.D. (Cornell University), *Soil Conservationist.* Stockbridge Hall

ROBERT BIEBER, JR., *Farmer Fieldman, Field Service Branch, Production and Marketing Administration.* North College

EDWIN CLARENCE MARTIN, *Farmer Fieldman, Field Service Branch, Production and Marketing Administration.* North College

SUMNER RUFUS PARKER, B.S. (Massachusetts State College), *State Director, Field Service Branch, Production and Marketing Administration.* North College

CHARLES CLINTON SCOTT, JR., *Principal Rodent Control Agent, Fish and Wildlife Service.* South College

MRS. ELEANOR ISABELLE STARZYK, *Administrative Assistant, Field Service Branch, Production and Marketing Administration.* North College

JESSE ALDERMAN TAFT, B.S. (Massachusetts State College), *Supervisor of Agricultural Teacher-Training.* Stockbridge Hall

(Member of Staff of State Department of Education)

STANDING COMMITTEES OF THE FACULTY

1946-1947

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Term expires 1946—MARKUSON, WOODSIDE.
Term expires 1947—FESSENDEN, RAND, TRIPPENSEE.
Term expires 1948—LINDSEY, MERRIAM, TOTMAN.

EXHIBITS

Chairman ROBERTSON, BLAISDELL, MYRICK, SWEETMAN, SNYDER, TRIPPENSEE, VINAL, VONDELL.

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* Alumni Representative

FARM AND HOME WEEK

Chairman VAN METER, BUNN, CARPENTER, COLBY, CREEK, JEFFREY, LEVINE, MCINTIRE, MITCHELL, RICE, C. L. THAYER.

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* Alumni Representative.

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STUDENT LIFE

Chairman HELMING, ALDERMAN, BARRETT, CURTIS, R. C. FOLEY, GARVEY, LANPHEAR, J. H. SMITH, TOTMAN, VARLEY.

VISUAL EDUCATION

Chairman BARRETT, L. BRIGGS, GODING, LANPHEAR, MUSGRAVE, PURVIS, RHODES, VONDELL.

* Alumni Representative.

MASSACHUSETTS STATE COLLEGE

Massachusetts State College is the State Institution of the Commonwealth founded under the provisions of the Morrill Land Grant Act of Congress of 1862. This Act provided in each state for "the endowment for and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts in such manner as the legislatures of the states may respectively prescribe in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Massachusetts accepted the provisions of the Morrill Act in 1863 by founding a new college at Amherst to be known as "Massachusetts Agricultural College" and Chapter 75 of the General Laws of the Commonwealth states that "the leading object of the College shall be to teach subjects relating to agriculture and the mechanic arts so as to promote liberal and practical education. Its curriculum may include other scientific and classical studies and shall include military tactics."

The Trustees of Massachusetts Agricultural College were incorporated in 1863 and officers were appointed in that year. It was not until October 2, 1867, however, that the College was formally opened to students. At that time there were four teachers on the faculty and four wooden buildings on the campus. The enrollment steadily increased during the first term, however, and by December, 1867, forty-seven had been admitted. From this modest beginning the College has grown steadily both in number of students and scope of its work. In April, 1931, the name of the institution was changed by legislative enactment to Massachusetts State College. In 1939 the Trustees voted to award the A.B. degree as well as the B.S. which previously had been the undergraduates degree of the College.

FUNCTIONS OF THE COLLEGE

Massachusetts State College now serves the Commonwealth in the three important fields of resident instruction, research, and extension. Since all three services are organized on the campus, students have the advantages that come through contact with those carrying education to the state at large and conducting original investigation as well as those engaged in formal instruction.

RESIDENT INSTRUCTION

DEGREE COURSES

The Undergraduate College. The College offers four year undergraduate instruction leading to the Bachelor of Science (B.S.), Bachelor of Arts (A.B.), or Bachelor of Vocational Agriculture (B.V.A.) degree.

This instruction is assigned to the Schools of Agriculture, Home Economics, Horticulture, Science and Liberal Arts, and to the Divisions of Physical Education, Military Science and Tactics, and Engineering. The aim of the four year course is to give as high a degree of proficiency in some particular branch of learning as is possible without sacrificing the breadth, knowledge, and training which should characterize a well rounded college education.

The degree of Bachelor of Science is conferred upon those candidates who complete the prescribed courses of the first two years in the following Schools: Agriculture, Horticulture, Home Economics, Science, or in the Divisions of Physical Education (for men) or Engineering, and the specialization requirements of the junior and senior years. This degree will also be granted to students who complete the departmental requirements for specialization in Economics, Education, Psychology, or Sociology except as the candidate prefers the A.B. degree and meets the requirements to be found in the following paragraph.

The degree of Bachelor of Arts is conferred upon those candidates who major in the School of Liberal Arts and who complete the requirements of that School for the freshman and sophomore years. During their junior and senior years they may fulfill either the departmental requirements for specialization in History or Languages and Literature; or the departmental requirements for specialization in Economics, Education. Psychology, or Sociology and supplement these with eighteen credits from the following group: History, Languages and Literature, Philosophy, Music, and Art.

Special arrangement is made for some graduates of county agricultural schools and of agricultural departments of certain high schools to receive the degree of Bachelor of Vocational Agriculture for four years of college work.

The Graduate School. Graduate courses leading to advanced degrees are available in the Graduate School. Majors leading to the Master of Science or Doctor of Philosophy degree may be taken in the following fields: Agronomy, Bacteriology, Botany, Chemistry, Economics, Entomology, Food Technology, and Poultry Science.

In addition, the following departments offer major work leading to a Master of Science degree only: Agricultural Economics and Farm Management, Animal Husbandry, Dairy Industry, Education, Floriculture, History, Home Economics, Olericulture, Physical Education (Men), Pomology, Psychology, Sociology, and Zoology.

The degree of Master of Landscape Architecture is granted to students completing the two years' graduate work offered by the Department of Landscape Architecture; while students taking the equivalent of one year's graduate work in that major may be granted the degree of Bachelor of Landscape Architecture.

Several other departments in the institution, while not regularly organized for major work in the Graduate School, do, nevertheless, offer courses which may be selected for minor credit. These are: English, French, Forestry, Geology, German, Mathematics, Philosophy, Physics, Physiology, and Veterinary Science.

The general requirements of the Graduate School regarding entrance, residence credits, tuition, fees, etc., together with specific information concerning details of interest to prospective students are set down in a separate bulletin which may be obtained upon request from the Director's Office.

THE SUMMER SCHOOL. A twelve weeks' Summer Session is available for those desiring to accelerate their program. This Summer Session is planned to serve the needs of (1) all students enrolled as candidates for a degree at any college, (2) those desiring refresher or professional improvement courses, (3) graduate students desirous of meeting specific requirements in certain fields, (4) any adult person who finds courses suited to his preparation and needs, (5) students who desire to begin their Freshman work, and (6) any men discharged from the Armed Forces who desire to resume their college program or take special courses for specific rehabilitation objectives.

MASSACHUSETTS STATE COLLEGE AT FORT DEVENS

MASSACHUSETTS STATE COLLEGE AT FORT DEVENS provides instruction of collegiate grade to veterans of World War II who meet the entrance requirements of the College and who resided in the Commonwealth at the time of their entry into the Service.

Applications for admission should be sent to the Board of Admissions at Massachusetts State College at Amherst.

The Governing Board consists of the Trustees of Massachusetts State College increased by nine other Trustees appointed by the Governor with the advice and consent of his Council. These nine Trustees are appointed from the presidents of colleges and universities within the Commonwealth.

NON-DEGREE SHORT COURSES

Several short courses in Agriculture and Horticulture are offered. These do not lead to a college degree. They are for the benefit of those who are not prepared to take a degree course or who desire only a practical training in modern agricultural methods.

THE STOCKBRIDGE SCHOOL OF AGRICULTURE. This School was organized at the College in 1918 under the name of "The Two Year Course in Practical Agriculture," for the purpose of meeting the demand for *shorter courses* in agriculture which might be taken by students who could not satisfy college entrance requirements or who, for one reason or another, were unable to take the college course. In 1928 the School was given its present name in honor of Levi Stockbridge, first professor of agriculture in the College and its fifth president.

This program trains men and women primarily for the practice of farming or associated agricultural industries. Graduation from the School does not fulfill the requirements for entrance into the degree course nor are credits earned during the course transferable regularly toward credit for a degree.

As the course is now organized, students may specialize in any one of eight vocations: animal husbandry, dairy manufactures, floriculture, ornamental horticulture, fruit growing, poultry husbandry, vegetable gardening, and stewarding for hotel and restaurant training. Specialization in a vocation does not prevent students from securing a general working knowledge of other subjects. The Stockbridge School will appeal not only to young men and women, but also to men and women of mature years and practical experience who wish to know more about the business of farming or related industries. The School is not intended for students enrolled in a high school; such students should complete their high school course before seeking admission.

For a complete catalogue of the Stockbridge School and also information in regard to other short courses and the Winter School in Agriculture and Horticulture, write the Director of Short Courses, Massachusetts State College, Amherst, Massachusetts.

RESEARCH AND REGULATORY SERVICES

Soon after it became evident that Agriculture deserved a place in the curriculum of public education, educators, responsible for the organization of courses, discovered that there was a dearth of useful or practical information on subjects related to Agriculture and that few of the practices then in operation had adequate scientific foundation to make them adaptable for classroom instruction. The realization of this inadequacy and an attempt to overcome it was perhaps more responsible than any other interest for the development of research in Agriculture and the consequent establishment of experiment stations in all of the states.

These agencies, during more than fifty years of research, have accumulated a fund of knowledge that has developed Agriculture to a point where it is now recognized as more of a science than an art. Since these early beginnings, the subject has become sufficiently teachable to have a pronounced effect on the development of the entire industry. The resulting improvements in the efficiency and effectiveness of agricultural practices benefit the entire consuming public through the possibilities for a higher standard of living, in so far as that standard is influenced by subsistence requirements. This has led to demands for the expansion of research services until, at present, experiment stations are receiving federal support under four congressional acts and, in most states, are also liberally supported by legislative appropriations.

This service is one of the functions of the Massachusetts State College. It has expanded until it now deals with problems in the following fields of specialization: Agricultural Economics and Farm Management, Agronomy, Animal Husbandry, Bacteriology, Botany, Chemistry, Dairy Industry, Economics, Engineering, Entomology, Horticulture, Floriculture, Food Technology, Nutrition, Olericulture, Pomology, Poultry Science, and Veterinary Science.

While most of the research activities are undertaken at the main station at Amherst, special service is offered through two substations, one at Waltham and the other at East Wareham, where particular phases of Agriculture are stressed. The research at Waltham is devoted largely to the problems of Horticulture as applied to Olericulture, Floriculture, and Nurseryculture while, at East Wareham, attempts are in progress to solve the problems of the cranberry and blueberry growers.

The administration of certain regulatory services, as these pertain to the sale of feeds, fertilizers, and seeds and to the use of dairy glassware, is also assigned to the Experiment Station which is equipped with the necessary laboratory facilities and personnel for that purpose.

EXTENSION SERVICE

The Massachusetts Extension Service is a cooperative teaching effort between the United States Department of Agriculture, the Massachusetts State College, and the several counties of the State. It is done through unified teaching programs carried to all parts of Massachusetts. It assists the people of the farm, the home, and the rural communities to improve agriculture, homemaking, and rural life. Extension educational teaching plans are made in council with the people. They determine their problems and help to suggest methods and practices for their solution.

This cooperative effort was brought about under the Federal Smith-Lever Law passed by Congress on May 8, 1914. Since that time, the service has grown to a staff of over 100 state and county workers who conduct an educational program in all phases of agriculture and homemaking among the adults and young people (4-H club work) of the State. All types of methods, including subject-matter meetings, demonstrations, farm and home visits, publications, visual aids, and radio, are used in carrying out this educational program directly in the farm and rural areas of the State. During the war emergency, the Extension Service extended its home food production and preservation program to the urban and city areas.

THE COLLEGE CAMPUS

Massachusetts State College is located at Amherst, a town of about 6,000, overlooking one of the most picturesque sections of the Connecticut River Valley. This valley is noted both for its scenic beauty and its educational institutions. The setting for the College, therefore, is ideal. The surrounding country is a rich agricultural region providing an excellent outdoor laboratory for the work in Agriculture and Horticulture as well as for the Biological Sciences and Geology. Those interested in other Sciences and Liberal Arts study under equally favorable conditions both because of the facilities at the College and its location in this educational area of the valley.

Amherst is eighty-eight miles from Boston and may be reached by the Central Vermont Railroad, or by bus connections from Northampton, Greenfield, and Springfield. The campus consists of a tract of approximately seven hundred acres, lying about a mile north of the village center. In addition, the College owns another area of seven hundred and fifty-five acres six miles north of the campus on Mount Toby. This is used as a demonstration forest.

The College also operates a horticultural field station at Waltham and a cranberry field station at East Wareham.

BUILDINGS AND EQUIPMENT

The campus is laid out in the form of an oval attractively set off by the College Pond in the center. Around this oval are grouped the main buildings of the College. Those using the attached map of the campus are advised to start at South College, the Administration Building, and proceed in the order indicated below.

SOUTH COLLEGE.—Here are located the administrative offices including those of the President, Dean, Registrar, Treasurer, Secretary, Director of the Extension Service, of Short Courses and the Stockbridge School of Agriculture, Placement Service, and the Adviser of Women. Erected 1885.

NORTH COLLEGE.—Dormitory, the College Store, offices and classrooms of the Department of Economics. Erected 1868.

Farley 4-H Club Building and Bowditch Lodge.—These are the headquarters for 4-H Club Activities. Erected in 1933 and 1936 by funds contributed by 4-H Club members and interested friends and organizations. The former was named to honor George L. Farley for twenty-five years State Leader of County Club Agents; the latter for Nathaniel Bowditch, trustee of the College since 1896.

POWER PLANT.—General Maintenance.

GRINNELL ARENA AND ABATTOIR.—Erected in 1910 primarily for livestock judging. An abattoir was constructed in 1930 as an addition to the original building. Named in honor of James S. Grinnell, for twenty-two years a trustee of the College.

FLINT LABORATORY.—Laboratories and classrooms for Dairy Industry and Home Economics. Erected in 1911 and named for Charles L. Flint, fourth President of the College.

STOCKBRIDGE HALL.—Departments of Agricultural Economics and Farm Management, Agronomy, Animal Husbandry, Engineering, Poultry Husbandry, and Education. Erected in 1914 and named for Levi Stockbridge, first Professor of Agriculture and a former President of the College. Bowker Auditorium, the main auditorium of the College, is located here. It is named for William H. Bowker, a member of the first graduating class, a trustee of the College, and one of the pioneers in the fertilizer industry.

FOOD TECHNOLOGY LABORATORY.—Classrooms and laboratories including a large Commercial Canning Practices Laboratory. Erected 1929.

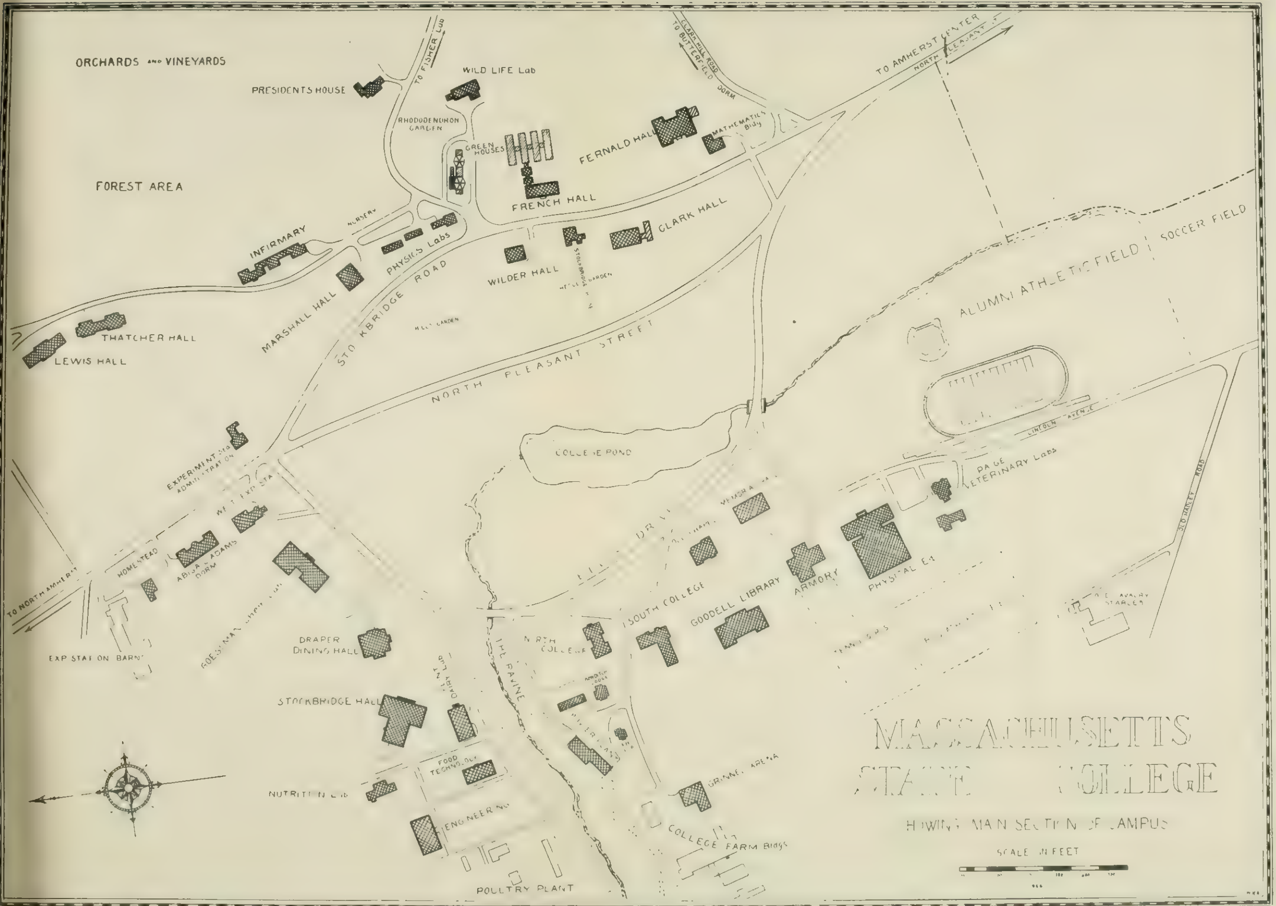
NUTRITION LABORATORY.—A laboratory for the study of small animals and chickens in connection with investigations into human, animal, and poultry nutrition.

ENGINEERING LABORATORY.—Erected 1916.

DRAPER HALL.—College Dining Hall. Erected 1903 with an addition in 1912. Named in honor of James Draper, for twenty years a trustee of the College.

GOESSMANN LABORATORY.—Contains eight large laboratories, an auditorium, chemical library, and lecture rooms. The east wing of the third floor is used by the Experiment Station chemists. The remainder of the building is for resident instruction in Chemistry. Erected in 1924 and named in honor of Charles A. Goessmann, first Professor of Chemistry at the College.

WEST EXPERIMENT STATION.—The State Control Service is centralized here. Fertilizers, seeds, and feeds are analyzed or inspected in accordance with the State law. Erected 1886.


ORCHARDS AND VINEYARDS
PRESIDENTS HOUSE
TO FISHER Lab
WILD LIFE Lab
TO BUTTERFIELD DORM
CLARK HILL ROAD
TO AMHERST CENTER
NORTH PLEASANT ST
RHODODENDRON GARDEN
GREEN HOUSES
FERNALD HALL
MATHEMATICS Bldg
FOREST AREA
FRENCH HALL
CLARK HALL
NURSERY
INFIRMARY
PHYSICS Labs
WILDER HALL
STOCKBRIDGE HOUSE
HELD GARDEN
SOCCER FIELD
ALUMNI ATHLETIC FIELD
THATCHER HALL
LEWIS HALL
MARSHALL HALL
STOCKBRIDGE ROAD
NORTH PLEASANT STREET
LINCOLN AVENUE
COLLEGE POND
EXPERIMENT STA ADMINISTRATION
WEST EXP STA
HOMESTEAD
ABIGAIL ADAMS DORM
PAGE
VETERINARY Labs
MEMORIAL HALL
OLD CHAPEL
DRIVE
OLD HADLEY ROAD
TO NORTH AMHERST
SOUTH COLLEGE
GOODELL LIBRARY
ARMORY
PHYSICAL ED
OLD CAVALRY STABLES
TENNIS COURTS
EXP STATION BARNS
DRAPER DINING HALL
DAIRY Lab
THE RAVINE
NORTH COLLEGE
ABBOTT LODGE
STOCKBRIDGE HALL
FOOD TECHNOLOGY
NUTRITION Lab
ENGINEERING
GRINNELL ARENA
COLLEGE FARM Bldgs
POULTRY PLANT
MASSACHUSETTS
STATE COLLEGE
SHOWING MAIN SECTION OF CAMPUS
SCALE IN FEET

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EXPERIMENT STATION ADMINISTRATION.—Here are located the offices of the Director of the Experiment Station and other administrative officials.

ABIGAIL ADAMS HOUSE.—Women's dormitory accommodating one hundred students. Erected in 1919 and named for Abigail Adams, wife of John Adams, second President of the United States.

THE HOMESTEAD.—Girls majoring in Home Economics receive their Home Management practice here. This is a fine old colonial homestead newly equipped with all the modern conveniences of the home.

LEWIS HALL.—Men's dormitory accommodating one hundred and fifty students. A self-liquidating dormitory erected under the sponsorship of the Associate Alumni in 1940 and named in honor of Edward M. Lewis, Dean of the College 1914-25 and President 1925-27.

THATCHER HALL.—Men's dormitory with facilities for one hundred and fifty students. Erected in 1935 and named in honor of Roscoe W. Thatcher, President of the College 1927-32.

COLLEGE INFIRMARY.—A group of three buildings, one for bed patients, one for out patients and a third for contagious cases.

MARSHALL HALL.—Erected in 1915 and named for Dr. Charles Marshall, a former Professor of Bacteriology and Director of the Graduate School. Here are the laboratories and classrooms used by the Departments of Bacteriology and Physiology.

PHYSICS LABORATORY.—Classrooms and laboratories for Physics. Erected 1867.

FISHER LABORATORY.—Erected in 1910 and named for Jabez Fisher, one of the foremost early horticulturists of the State. Laboratories for Pomology. Included are a quick freezing room, six refrigerator rooms, two rooms for the storage of frozen products, two classrooms, and three packing rooms.

WILD LIFE LABORATORY.—Laboratories for the Department of Wild Life Management.

WILDER HALL.—Here are the classrooms, drafting rooms, and offices of the Department of Landscape Architecture. Erected in 1905 and named for Marshall P. Wilder, a pioneer in the movement for agricultural education in Massachusetts and one of the first trustees of the College.

FRENCH HALL.—French Hall houses the Departments of Floriculture, Forestry, Pomology, and Olericulture. In the rear of the building is the new Durfee range of greenhouses devoted to the growing of carnations, roses, chrysanthemums, etc. One house is maintained as a conservatory and contains a collection of plants used primarily for decorative purposes. The old Durfee range just north of French includes a collection of tropical and semi-tropical plants of botanical and horticultural importance.

STOCKBRIDGE HOUSE.—Faculty Club House.

CLARK HALL.—Offices, lecture rooms, laboratories, and greenhouses of the Department of Botany are located here. The herbarium contains about twenty thousand sheets of seed plants and ferns, twelve hundred sheets of liverworts and mosses, and a collection of twenty-five thousand specimens of fungi. The building was erected in 1906 and named in honor of William S. Clark, President of the College and Professor of Botany from 1867 to 1879.

FERNALD HALL.—Erected in 1909 and named in honor of Professor Charles H. Fernald who served the College from 1886 to 1909, built up a strong Department of Zoology, created the Department of Entomology, and acted as Director of the Graduate School. Fernald Hall houses the Department of Entomology, Zoology, and Geology. The offices and laboratories of the Western Sanitary District, Massachusetts Department of Public Health are also located here. The Entomology collection includes over 160,000 insects. There are also Geological and Zoological museums.

MATHEMATICS BUILDING.—Classrooms and offices of the Mathematics Department.

KENYON L. BUTTERFIELD HOUSE.—Freshman women's dormitory accommodating one hundred and fifty students. A self-liquidating dormitory erected in 1941 under the sponsorship of the Associate Alumni. Named in honor of Kenyon L. Butterfield, President of the College 1906-1923.

PAIGE LABORATORY.—The work in Veterinary Science is located here. In addition to class, lecture, and laboratory rooms, there are laboratories for the State Control and Research Work on animal diseases. The museum contains a growing number of anatomical and pathological specimens, most of which are used for teaching purposes. Erected in 1898 and named for James B. Paige, Professor of Veterinary Science from 1891-1922.

CURRY S. HICKS PHYSICAL EDUCATION BUILDING.—Erected in 1931 from funds contributed by Alumni and friends of the College plus an appropriation by the State Legislature. Contains a large swimming pool, an exercise hall, basketball floor, and locker rooms. The Health Office and x-ray room are also located here. Named for Curry S. Hicks, Professor of Physical Education since 1911.

ALUMNI FIELD.—So called because both funds and labor for its construction were contributed by alumni and students. Included are a baseball diamond, football and soccer fields, and a cinder track. Ten tennis courts are adjacent to the Physical Education Building.

ATHLETIC FIELD FOR WOMEN.—A large field west of the Physical Educational Building provides space for Archery, Softball, Field Hockey, and other women's activities.

COLLEGE ARMORY.—In addition to the offices of the Department of Military Science are the offices, locker and dressing rooms, and exercise hall for the Department of Physical Education for Women.

MEMORIAL HALL.—Erected in 1921 by Alumni and friends in memory of those men of the College who died in World War I. Included is a beautiful Memorial Room. This building is a social center of student life. Alumni headquarters are here as well as the offices of student organizations including the Senate, Collegian, and Index. In the basement are bowling alleys and pool tables.

OLD CHAPEL.—Erected in 1885. Auditorium, seminar room, classrooms, and offices for English, History, and Foreign Languages.

GOODELL LIBRARY.—Goodell Library is named in honor of Henry Hill Goodell who served the College from 1867-1905. He was President from 1886 to 1905 and because of his deep enthusiasm for books also acted as Librarian of the College.

Goodell Library is a virtually fireproof building erected in 1935. Its plan is unique in that the book-stacks are open freely for inspection and borrowing.

The main floor includes a large reading room, a reference room, delivery desk, cataloging and administrative offices. On the second floor is another large reading room, commonly used for reserve book reading. There are also studies for faculty and students and the Massachusetts State College Memorabilia room.

Besides Goodell Library there are fifty-two departmental libraries ranging from small collections to sizable separate libraries with reading rooms and valuable collections of reference and text books.

The complete library system contains 136,000 volumes and is growing at the rate of over 4,000 volumes a year. The library regularly receives over 600 periodicals, and also the serial publications of learned societies. It is also a depository for government documents of the United States Department of Agriculture and the various State Experiment Stations.

INFORMATION CONCERNING THE COLLEGE COURSE

The sections of the catalogue that follow are primarily for undergraduate students in the four year degree course. Those interested in graduate study are referred to the Graduate School catalogue and in short courses to the Stockbridge School and other short course publications.

STUDENT EXPENSES

College expenses vary from approximately $650 to $750 per year for the normally economical student. First year costs are usually greater than those of the other three years and there is less opportunity to earn. A student is advised to have a definite plan for meeting the expenses of the first year before entering.

The following estimates of a year's expenses, based upon last year's costs, includes only those items which are strictly college and not amounts for clothing, laundry, travel, etc. These costs vary slightly from year to year. Tuition for residents of Massachusetts is $100 per year and for others $220.

	Normal
Tuition (citizens of Massachusetts)	$100.00
Room in college dormitory or private home (ave.)	140.00
Board at College Dining Hall	280.00
Books, stationery, and other supplies	90.00
Student taxes	31.50
	$641.50

INITIAL PAYMENT FOR FRESHMEN

The initial payment required of freshmen at the time of fall registration is indicated below and is made up of the following items:

Tuition (citizens of Massachusetts)	$50.00
Room rent (dormitory) (approximately)	70.00
Board (College Dining Hall)	140.00
Military Uniform (men students)	30.00
Student Tax	16.75
Books, Stationery, etc.	45.00
	$351.75

The above are only approximate figures. A bill will be rendered to the parent of each student prior to the opening of College.

Tuition.—As a state institution Massachusetts State College offers a low rate of tuition to all students entering from the Commonwealth.

Eligibility for admission under the low residential rate is determined in accordance with the following policy established by the Board of Trustees.

A student must present evidence satisfactory to the Treasurer of the College that his domicile is in the Commonwealth of Massachusetts in order to be considered eligible to register in the College as a resident student. This means that he must have established a *bona fide* residence in the Commonwealth with the intention of continuing to maintain it as such.

The domicile of a minor shall follow that of the parents unless such minor has been emancipated. In case of emancipation the student, in addition to the requirements of these regulations respecting residence, shall present satisfactory proof respecting emancipation. Minors under guardianship shall be required to present, in addition to the certification of the domicile of the guardian, satisfactory documentary evidence of the appointment of the guardian.

No student shall be considered to have gained residence by reason of his attendance in the College nor shall a student lose residential preference during his continuous attendance at the College.

The residence of a wife shall follow that of the husband.

The prescribed form of application for classification as to residence status must be executed by each student. Misrepresentation of facts in order to evade the payment of out of state tuition shall be considered sufficient cause for suspension or permanent exclusion from the College.

Discretion to adjust individual cases within the spirit of these rules is lodged with the President of the College.

BOARD.—All freshman students and all residents of college dormitories are required to board at the College Dining Hall. However, upper-class students, residents of dormitories, may board off-campus in approved dining halls which are under faculty supervision. Service is on a cafeteria basis and students pay in advance at beginning of each semester.

For absences of one week or more rebates may be granted provided the absence is authorized by the Dean and the rebate approved by the Treasurer. No rebates will be allowed for absences of less than one week.

Excuses from compliance with these regulations concerning board shall be made only by the Treasurer of the College, who may require a recommendation in individual cases from the Student Health Officer, if the excuse is requested for health reasons, or from the Dean, if the reason has to do with the student's academic opportunities.

MILITARY UNIFORM.—All students taking military drill are required to make a deposit of $30 for the uniform. A rebate of this amount is made when the uniform is returned.

STUDENT ACTIVITY TAX.—This tax, authorized by vote of the undergraduate students with the approval of the Board of Trustees, provides each student with the Collegian, the student newspaper; Index, college annual; Social Union privileges, student government, class, and other activities.

ADVANCE PAYMENT

New students will be expected to make an advance payment of $15 to the Treasurer of the College as soon as they are notified by the Registrar that they are accepted for admission. This will be considered as first payment on registration fees which will be due at time of matriculation in September and will be returned to the student if he advises the College before August 20 that he will not present himself for admission. If the student fails to notify the College of withdrawal before that date, this preliminary payment will be forfeited.

REFUNDS

A student who leaves the College for any reason before a semester is half completed will have refunded to him one-half the fees paid for that semester, but one who leaves after a semester is half over will be allowed no rebate of fees and a refund only of unused board charges. There will be no refund of prepaid rent.

WHEN PAYMENTS ARE DUE

In accordance with policy established by the Board of Trustees, all charges for tuition, fees, board, and room rent in College dormitories are due at the beginning of each semester and must be paid on or before the opening date of each semester.

As a public institution operating upon appropriation of public funds, it is not possible for the College to extend credit beyond the limits indicated above. Failure to meet College charges when due must result in the suspension of the student.

LATE REGISTRATION

Any student who does not complete his registration on the regular registration days will be required to pay a fine of one dollar.

FINANCIAL REQUIREMENTS FOR GRADUATION OR HONORABLE DISMISSAL

Diplomas, transcripts of record, and letters of honorable dismissal will be withheld from all students who have not paid all bills and all loans due the College or all legitimate bills for room rent and board due fraternities or private individuals. All such bills due the College must be paid ten days preceding Commencement. If paid after that date and the student is otherwise eligible, he may graduate the following year.

Private creditors of students must present itemized statement of charges to the Treasurer of the College at least 15 days before graduation if they wish to have their claims recognized by the College.

FINANCIAL AID

Scholarships, loans, and part-time employment are available for a limited number of needy and deserving students.

Aid for Freshman Year.—Freshmen are eligible for scholarships and part-time employment. A freshman also becomes eligible for assistance from loan funds after satisfactorily completing one semester of academic work. Scholarship appplication blanks may be secured from the Registrar and should be filed by May 1. Part-time employment application forms may be obtained from the Director of Placement Service and filed after a candidate has been accepted for admission.

Because of the time required for preparation of studies, few students should plan to spend more than ten hours per week in part-time employment.

Aid for Upperclassmen.—To become eligible for financial assistance, whether scholarship, loan, or part-time employment, students must file completed financial aid application forms with the Student Aid Committee in the Placement Service Office by June 1 previous to the college year for which assistance is asked.

SCHOLARSHIPS

Scholarships are awarded only to needy and deserving students of high character whose habits of life are economical and whose scholastic records are satisfactory. A limited number of these scholarships are available for entering freshmen.

Scholarships are paid in installments at the beginning of each semester in the form of a credit on the student's bill. A scholarship may be discontinued at the close of any semester if the scholastic record of the recipient is unsatisfactory.

If a scholarship student withdraws from College, any refund of college fees or charges must first be applied to reimburse the scholarship fund for the full amount of the scholarship received by the student for the semester.

The following scholarships are available:

Alvord Dairy Scholarship: for a worthy student specializing in the study of Dairy Husbandry with the intention of becoming an investigator, teacher or special practitioner in connection with the dairy industry.

Danforth Keyes Bangs Scholarship: for the aid of industrious and deserving students.

Chi Omega Award: The local chapter of the Chi Omega Sorority offers an annual scholarship of twenty-five dollars to that woman student majoring in the departments of economics or psychology who has the highest scholastic average at the end of the first semester of the senior year.

Class of 1882 Scholarship: for the aid of a worthy student of the junior or senior class.

Frederick G. Crane Scholarships: for the aid of worthy undergraduate students, preference being given to residents of Berkshire County.

J. D. W. French Scholarships: for deserving students in dairying and allied subjects; also Forestry.

Henry Gassett Scholarship: for a worthy undergraduate student.

Charles A. Gleason Scholarships: general scholarships for worthy students.

Hood Dairy Scholarships: to aid boys whose ultimate objective is the operation of their own dairy farms. The $800 available annually is divided equally among the four classes. Each class award may go to one student or be divided among several.

Lotta Scholarships: The Trustees of the Lotta Crabtree Agricultural Fund have made available a substantial sum for scholarships. One-fourth of the amount granted is awarded to freshmen.

Margaret F. Motley Scholarship: one scholarship of $100 for an upper-class student studying Horticulture, Landscape Architecture or Floriculture.

Porter L. Newton Scholarships: for the aid of worthy and deserving students in the field of agriculture.

Betsey C. Pinkerton Scholarships: two general scholarships for graduates of the schools of the city of Worcester.

Sears Scholarships: The Sears Roebuck Company provides for seven scholarships of $125 each which are awarded annually to deserving students in the freshman class who desire to major in agriculture.

Whiting Street Scholarships: Scholarships of fifty dollars each for deserving students.

Helen A. Whittier Scholarship: for a deserving woman student in art as applied to living.

There are also the following special scholarships:

Cotting Memorial Scholarship—all college expenses of freshman year—for a woman student. Recipient of this scholarship is selected by a committee of the New England Branch of the Farm and Garden Association from among candidates proposed by State Leaders of 4-H Club work in the New England states.

Wilbur H. H. Ward Scholarships.

Twenty-five scholarships of approximately $100 known as the Wilbur H. H. Ward Scholarships. The Wilbur H. H. Ward Fund is administered by a Board of Trustees independent of the College. Applicants for these scholarships should write to Sumner R. Parker, who may be addressed at the College. They are available only to Hampshire County boys.

Women's Student Government Association Scholarship of $50. An award by the Women's Student Government Association to a young woman student at the end of her junior year. The basis of award considers character and personality, scholastic achievement, campus influence and service.

George L. Farley Scholarship. The Massachusetts Society for Promoting Agriculture has established a scholarship in memory of George L. Farley. The income of approximately $60 per semester is awarded to deserving 4-H Club members, men or women, recommended by the State Leader of 4-H Clubs from applications submitted to County 4-H Club Agents.

The Borden Company Foundation. Provides an annual Scholarship Award of $300 to that senior student in Agriculture who has achieved the highest average grade in all college work preceding the senior year. No student whose curriculum did not include at least two courses in Dairy subjects is eligible.

ASCENSION FARM SCHOOL SCHOLARSHIPS. The Trustees of the Ascension Farm School offer annually approximately $2400 for scholarships. These are restricted to men from Western Massachusetts who are studying in the fields of Agriculture and Horticulture.

LOANS

Through the generosity of friends of the College, funds have been donated to provide loans for a limited number of students of the three upper classes to assist in paying tuition or other college expenses. These loans are granted, after proper consideration, to needy students of good scholarship whose habits are economical. All loans are secured by a note endorsed by a responsible party as collateral. All such loans must be paid before graduation. Upon withdrawal from College, loans automatically become due. Interest is charged at the rate of 3% to maturity, 5% thereafter on loans from all funds except the Lotta Agricultural Fund, from which loans are made without interest. Application for loans should be made to the Student Aid Committee, Placement Service Office, South College. No loan will be granted in excess of $150 in any one year.

If funds are available at the beginning of the second semester, loans may be made in exceptional cases to members of the Freshman class whose scholastic record is satisfactory and whose budget calculations have been upset through circumstances beyond their control.

DANFORTH KEYES BANGS FUND.—This is a gift of $6,000 from Louisa A. Baker of Amherst, the income of which is used in aiding poor, industrious and deserving students to obtain an education in the Massachusetts State College.

LOTTA AGRICULTURAL FUND.—A limited number of loans are made to students from the income of this fund. Such loans are made without interest but only to deserving students of high scholastic rank. This fund is administered by a Board of Trustees independent of the College although loans are made only upon the recommendation of the President of the College.

VINCENT GOLDTHWAIT MEMORIAL LOAN FUND.—A gift of $5,000 from Dr. Joel E. Goldthwait in memory of his son. This fund is used almost entirely for students in the Stockbridge School of Agriculture.

FRANK A. WAUGH FOUNDATION.—Graduates of the Department of Landscape Architecture and friends of Professor Frank Waugh have established this fund, to be used in part for loans to deserving seniors and fifth year students of that department. Requests for loans shall be reviewed and approved by the head of the Department of Landscape Architecture and submitted to the Board of Trustees of the Foundation, who shall make final decision as to granting of the loans and amounts thereof.

4-H SCHOLARSHIP AND LOAN FUND.—This fund is under the supervision of the State Leader of 4-H Clubs and is used to aid students preparing for agricultural and home economics service.

NATIONAL PEST CONTROL ASSOCIATION LOAN FUND.—A fund established by the National Pest Control Association for needy students in the field of Entomology.

PART-TIME EMPLOYMENT

The Placement Service is the clearing center for all part-time jobs of the College. Students are assisted in obtaining part-time work during the College year and full-time work during the summer vacation. Employment is not guaranteed but every effort is made to help those students who must work to meet their college expenses. This Office also maintains a Placement Service for graduates of the College.

In order to give assistance to as many needy students as possible, the Student Aid Committee has adopted the policy of limiting the maximum financial aid per student to the equivalent of board, or approximately $280. The average earnings of students engaged in part-time work is approximately $100 per student per year.

STUDENT LIFE AND WELFARE

HEALTH SERVICE

The College endeavors to safeguard the health of all students while on the campus and for this purpose maintains a Department of Student Health staffed by two physicians and two resident registered nurses, and a group of three Infirmary buildings.

(1) Physical examination by the Health Service is required annually of all undergraduate students, or more often if indicated. This examination is given to freshmen during matriculation week. Evidence of a SUCCESSFUL smallpox vaccination is required.

(2) The Student Health physicians have offices in the Physical Education Building and in the out-patient Infirmary Building, where they may be consulted during college hours.

(3) The Infirmary consists of 3 buildings, one for bed patients, one for contagious cases, and one for out-patient cases, where the out-patient clinic is conducted daily by one of the Student Health physicians.

(4) The students are urged to consult the resident physicians at the first sign of physical disorder, or even for minor accidents. Many severe illnesses and much lost time can be avoided by early or preventive treatment.

(5) No charge is made to Infirmary bed patients for the first seven days in the school year; time in excess of seven days will be charged at the rate of $2 per day. A nominal charge may be made to out-patients for miscellaneous treatments.

(6) In addition to the fee charged as specified in paragraph 5, the following additional expenses will be charged to the patient.

(a) *Nurses.*—If a special nurse is required for the proper care of an individual, the services and board of this nurse will be paid by the patient. Such a nurse will be under the general supervision of the resident nurse.

(b) *Professional Service.*—If a student requires continuous medical attention by a physician, he may be required to select a town physician and become responsible for fees charged by that physician.

(c) *Supplies.*—Special medical supplies prescribed by a physician will be charged to the patient.

(d) *Laundry.*—Expenses for personal laundry incurred by students while in the Infirmary will be charged to the individual student.

STUDENT HOUSING

It is the policy of the Board of Trustees that freshmen men and women students shall be housed in campus dormitories and be required to eat at College Dining Halls unless given permission to commute. Sophomore and upper-class students will also be required to live in College dormitories in so far as accommodations are available. Those who cannot be so housed will be given permission to live in fraternity or sorority houses or in private homes.

Students who are assigned to college operated houses are expected to occupy them for the entire College year and may not be released sooner except as their places are taken by suitable substitutes.

Dormitories will be open for occupancy on Sunday at 1:00 p.m. preceding the opening of College.

Rooms are furnished except for necessary bedding and linen and are cared for by the students occupying them. Each occupant is held responsible for any damage done.

All student property must be removed from the rooms immediately after the final examinations in June. Such property not removed by the owner will be removed by the College and stored at the owner's expense.

The general supervision of housing of all students is in charge of the Faculty Committee on Housing.

Rooms for Women Students.—Dormitory rooms are available for women students at Lewis and Thatcher Halls, Abigail Adams House, and North College.

Under the supervision of the Dean of Women, life in each dormitory is directed by a council of student leaders, advised by a full-time Housemother, so that conditions in the residence hall are conducive to study and good living habits. Through Women's Student Government, the responsibility is put upon each student to live according to her own best standards as well as according to the standards of the group.

Freshmen girls will be assigned rooms in the dormitories and will be notified of the assignment prior to the beginning of college.

Near the close of each year, Sophomores and upperclassmen will draw numbers to determine the order in which rooms may be chosen for the coming year.

The Dean of Women may permit students to live off-campus for the reason that they wish to live at home, or in a sorority house, or that they have an opportunity to earn room and board in a private home.

Rooms for Men Students.—Dormitory rooms are available for men students at the Butterfield House and several new dormitories.

All first year men students will be assigned to campus dormitories. Upperclassmen wishing dormitory rooms should apply at the Registrar's Office before May 1. Those who cannot be accommodated in dormitories will be given permission to live in fraternities or private homes. Assignment of dormitory rooms will be under the supervision of the Registrar.

ADVISORY SYSTEM

In order that from the day he enrolls the freshman may have some one to whom he can go for consultation and assistance, each student, at the time of registration, is assigned to a faculty adviser. It is the function of this adviser to help the student in adjusting himself to the work and life of the College. He will also receive from the Registrar's Office and discuss with his advisee the academic progress reports as issued. He will also forward these to the parents. Both students and parents are encouraged to consult with the adviser whenever there are problems regarding studies or personal adjustment to college life.

At the beginning of the second semester of the freshman year each student will discuss his vocational and specialization plans with his adviser. If he can decide definitely upon the department in which he wishes to specialize, and the adviser approves, he will take his election card to the head of that department for approval. In cases where students are not ready to designate a department of specialization they will continue as general majors during the sophomore year under the direction of an adviser assigned by the head of the School. Such general majors must select their field of specialization at the end of the sophomore year.

During the junior and senior years the student is under the guidance of the head of the department in which he is majoring or an adviser assigned by him.

RELIGIOUS LIFE

The College makes an effort to provide a wholesome and stimulating spiritual atmosphere for its students.

Four religious organizations are active on the campus: The Christian Federation, The Newman Club for Catholic students, The Hillel Foundation for those of Jewish faith, and the Stockbridge Y for two year students. These four organizations unite in forming the United Religious Council which strives both to further amity among the religious faiths and to promote religious activities and thinking in the student body. These various religious organizations are sponsored by a Faculty Committee on Religious Work.

The churches of Amherst provide a fine opportunity for worship and participation in church work. Students are encouraged to attend the Sunday service in the local churches of their own faith.

STANDARDS OF DEPORTMENT

The customary high standard of college men and women in honor, self-respect and consideration for the rights of others constitutes the ideals of student deportment.

The privileges of the College may be withdrawn from any student at any time, if such action is deemed advisable.

It should be understood that the College, acting through its President or any administrative officer designated by him, distinctly reserves the right, not only to suspend or dismiss students, but also to name conditions under which they may remain in the institution. For example, if a student is not doing creditable work he may not only be disciplined but he may also be required to meet certain prescribed conditions in respect to his studies, even though under the foregoing rules his status as a student be not affected. The same provision applies equally to the matter of absences. According to the rules, juniors and seniors are allowed a certain percentage of absences from class and other exercises. This permission, which implies a privilege and not a right, may be withdrawn at any time for any cause.

Similarly, also, it applies to participation in student activities. Though this will ordinarily be governed by the rules as already laid down, yet if, in the judgment of the college authorities, a student is neglecting his work on account of these activities, the privilege of participating in them may be withdrawn for such time as is considered necessary. Moreover, it may be withdrawn as a punishment for misconduct.

ACADEMIC REGULATIONS

FRESHMAN WEEK

All members of the incoming freshman class are required to be in residence on the campus for the period known as Freshman Week. During this period an attempt will be made to orient the student. He will be given psychological and mental tests, and a physical examination. Schedules and section assignments will also be arranged. In addition there will be lectures on student activities, college customs, and college curricula, and a scheduled meeting with the student's adviser.

REGISTRATION

Every student must report for registration on the appointed day. All late registrants must pay a fine. No student shall be admitted to any class until he presents his registration card, properly filled out and countersigned, to the instructor. This card, together with an hour plan, must be returned to the Registrar's Office within one week from the date of issue. Changes of courses on the registration card shall be made only in the Dean's Office.

No course will be recorded on the permanent records of the College nor will a student receive credit for it, unless such course appears on the registration card for the semester and has been properly countersigned by the instructor.

ADDING OR DROPPING COURSES

A student may not add or drop a course except with the permission of the Dean. A course dropped without permission will be recorded as a failure.

CHANGE OF MAJOR

A student wishing to change his major must get a Change of Major card at the Registrar's Office. This change is to be approved by the head of the Department or School which he is now majoring and also by his new major adviser. This card, properly indorsed, must be returned to the Registrar's Office before the change can be approved.

MARKING SYSTEM

All grading is done on a numerical basis with 60 per cent the passing grade. A student whose daily work in any course is entirely unsatisfactory will not be permitted to take the final examination in the course and is automatically failed. If he takes the final examination and fails to pass, the instructor may report either a condition (♯) or failure (F). To remove a condition, the student will have an opportunity to take a condition examination or he may repeat the course. A failed course must be repeated unless permission to substitute another course is granted by the Committee on Scholarship.

The scholastic record of each student is reported to his parents at the end of each semester. Mid-semester marks are sent to parents for the first semester only. A complete report of the scholarship record of each student during his first semester in College is sent to the principal of the school from which the student entered.

TRANSCRIPTS

Two transcripts of a student's record will be furnished without cost. For each additional copy there will be a charge of one dollar.

CONVOCATIONS

An assembly of all the students is held weekly at which attendance is required. The programs vary. Usually there is an address by an outstanding leader in education, science, government, international relations, or art. A few of the convocations are devoted to student activities such as debates, declamation contests, band and musical concerts.

STUDENT ORGANIZATIONS

One of the values received from the College course is the training one acquires through participation in student activities. Student organizations offer excellent opportunities for leadership in a wide variety of fields.

STUDENT GOVERNMENT

The Senate is the men's governing council. It is composed of representatives elected from the Junior and Senior classes. In cooperation with the Women's Student Government Association it serves as director of undergraduate conduct and represents the interests of the student body before the faculty.

The Women's Student Governing Association, composed of members elected from the Senior, Junior, and Sophomore classes, is the governing council of women students.

ACADEMIC HONOR SOCIETIES

Phi Kappa Phi.—The Massachusetts Chapter of the Honor Society of Phi Kappa Phi was installed at the College in 1904. Its prime object is to emphasize scholarship and character. Senior students from all departments of the College are eligible for election to membership provided the scholastic and character requirements of the Society are met.

Sigma Xi.—The Society of Sigma Xi is a scientific fraternity to which members are elected or the basis of outstanding scientific research. Undergraduates who show promise of ability for research in Science are elected as associate members. The local chapter was established in 1938.

HONORARY SOCIETIES

Adelphia.—A men's senior honorary society, recognizing men students who have been prominent in the extra curricular activities of the campus.

Isogon.—A women's senior honorary society. Its purpose is to recognize outstanding women students on the campus.

FRATERNITIES AND SORORITIES

Social fraternities on the campus include Alpha Epsilon Pi, Alpha Gamma Rho, Alpha Sigma Phi, Kappa Sigma, Lamba Chi Alpha, Phi Sigma Kappa, Q.T.V., Sigma Alpha Epsilon, Sigma Phi Epsilon, Tau Epsilon Phi, and Theta Chi. An inter-fraternity council, consisting of representatives of these fraternities, has charge of rushing and all general matters dealing with fraternity life.

Sororities include Chi Omega, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Delta Tau, and Sigma Kappa. The Pan-Hellenic Council, made up of representatives from the sororities, supervises rushing and other sorority matters.

PUBLICATIONS

Massachusetts Collegian.—This is a weekly newspaper published by undergraduates.

Collegian Quarterly.—A literary supplement to the Collegian.

Index.—The College Year Book published by the senior class.

ACADEMIC ACTIVITIES

The College Musical Clubs include an orchestra, a band, and men's and women's glee clubs. These make various public appearances during the year.

The Dramatic Club, the Roister Doisters, presents annually a revue and a play. There is a Debating Society which conducts both intramural and intercollegiate debates. All academic activities are supervised by the Academic Activities Board composed of alumni, faculty, and students, and find recognition in award of gold and silver medals.

INTER-COLLEGIATE ATHLETICS

The College is represented in inter-collegiate athletics by teams in all the leading sports, including football, baseball, track, hockey, soccer, swimming and basketball. General policies governing athletics are directed by the Athletic Board, composed of alumni, faculty, and students.

PROFESSIONAL CLUBS

There are several professional clubs established in connection with the various major courses of study. These clubs stimulate the students' professional interest in their chosen subject-matter fields and afford opportunity for discussion of technical subjects of mutual interest.

THE SOCIAL UNION

The Social Union was established in 1907. All students become members of the Union in consideration of a small part of the Student Activities Fee. In the fall and winter months the Union gives a series of entertainments.

HONORS, PRIZES, AWARDS

SCHOLARSHIP HONORS

Dean's Scholarship Groups.—At the beginning of each semester a list is posted of those students who during the previous semester made a general average of 80 percent or better. Three groups are recognized: those between 90 and 100; those between 85 and 90; and those between 80 and 85. Sophomores, juniors and seniors in the first two groups are allowed considerable freedom in the matter of class attendance.

Departmental Honors.—A student who has shown outstanding promise within some department and has maintained a general scholastic average of 80 percent or better is permitted to apply for the privilege of registering for departmental honors. If his application is accepted by his department and the Honors Committee, he is allowed to pursue a course of independent study within the department of his choice throughout his senior year. This may include intensive reading, investigation or laboratory work in connection with some problem that he chooses for his consideration. The objective is to create on the part of the student initiative, the power of independent investigation and to develop in him the spirit of research. Although the student is responsible for his undertaking he is encouraged to consult with his department in regard to his work should the need arise. At the close of his study the student presents a thesis covering his investigation. In addition he may be required to appear for an oral or written examination. If by the excellence of his work he satisfies all the requirements of his department and the Honors Committee, his name will appear on the commencement program as receiving honors in the field of his specialization.

SCHOLASTIC PRIZES

Phi Kappa Phi Award for Scholarship.—Massachusetts Chapter of the Phi Kappa Phi, honorary scholarship society, offers an award of $50 for outstanding work in scholarship. This is given to some member of the senior class at the opening of college in the fall. The award is based on the record of the first three years.

The Burnham Prizes.—These were made possible through the generosity of Mr. T. O. H. P. Burnham of Boston. Prizes of $15 and $10 are awarded to those students delivering the best and second best declamations in the Burnham contest. The preliminary contests are open under certain restrictions to freshmen and sophomores.

The Flint Prizes.—The Flint Oratorical Contest was established in 1881 by a gift of the late Charles L. Flint, a former president of the College. After his death the prizes were continued by college appropriation. Prizes of $30 and $15 are awarded as first and second prizes to those two students delivering the best orations in this contest.

The Hills Botanical Prize.—This is given through the generosity of Henry F. and Leonard M. Hills of Amherst, for the first and second best herbaria. Competition is open to members of the senior, junior and sophomore classes. First prize $20, second prize $15.

The Betty Steinbugler Prize in English.—This prize was endowed by John L. Steinbugler, New York City, in honor of his daughter Elizabeth

Steinbugler Robertson, a graduate of this College in 1929. It is awarded to a woman in the junior or senior class who has written the best long paper on a subject of literary investigation in a course in English during the year.

MASSACHUSETTS SOCIETY FOR PROMOTING AGRICULTURE PRIZES.—Three prizes of $25, $15, and $10 to be awarded to those senior students who are judged to have made the best records in the theoretical and practical work in agriculture required in their course of study, and in the special written and oral examination prepared for the purpose of this award.

ATHLETIC AND ACADEMIC PRIZES

THE ALLAN LEON POND MEMORIAL MEDAL.—This medal is awarded for general excellence in football in memory of Allan Leon Pond of the class of 1920, who died February 26, 1920. He was a congenial companion, a devoted lover of Alma Mater, a veteran of the Great War, a fine all-round athlete and a true amateur. He would rather win than lose, but he would rather play fair than win. He has been characterized as a typical student of this College.

THE THOMAS E. MINKSTEIN MEMORIAL AWARD.—This award is made by the Class of 1931 in memory of their classmate who died July 16, 1930, while he was captain-elect of football. The award is given to one of the outstanding men in the Junior Class who has as nearly as possible attained those standards of athletics, scholarship and leadership set by him whose memory this award honors.

THE GEORGE HENRY RICHARDS MEMORIAL CUP.—This cup is awarded annually to the member of the basketball team who shows the greatest improvement in leadership, sportsmanship, and individual and team play during the year. It is in memory of George Henry Richards of the Class of 1921 who died suddenly while a student at the College.

THE JOSEPH LOJKO MEMORIAL PLAQUE.—This plaque is presented to a senior who must be a letter man, have a satisfactory scholastic record and show those qualities of enthusiasm and cooperation which make for leadership. An award in honor of Joseph Lojko of the class of 1934, outstanding athlete who died while a senior in the College.

ACADEMICS CONSPICUOUS SERVICE TROPHY.—This trophy is awarded annually to that student who has made the most unique contribution to the Academic Activities during the year.

ACADEMICS MANAGERS' PRIZE.—Fifty dollars in gold awarded annually to that Academics manager who fulfills his routine duties most efficiently.

MILITARY HONORS AND AWARDS

Competed for yearly and presented during the year or at the Final Military Review.

SENIOR CLASS

Honor Appointment as 2d Lieutenant Regular Army.

Sons of American Revolution Medals (2) for outstanding military efficiency and leadership.

JUNIOR CLASS

Rifle Marksmanship Medal, for high aggregate score.
Qualification Badges U. S. Army for Rifle Marksmanship.
Major P. J. McNamara Trophy, for excellence in Horsemanship.

SOPHOMORE CLASS

John C. Hall Trophy for outstanding Military Efficiency.

FRESHMAN CLASS

Rifle Marksmanship Medal for high aggregate score.

ALUMNI ASSOCIATION

The Associate Alumni is the general organization of the Alumni of Massachusetts State College. The Association maintains headquarters at Memorial Hall erected by Alumni and friends to honor those men of the College who died in World War I. It publishes a monthly bulletin and, periodically, an Alumni Directory. It also sponsors local Alumni Clubs. According to a tradition set by the class of 1940, all seniors of each graduating class become members of the Association at graduation.

The Associate Alumni fosters the continued interest of all former students in one another and the College. It also seeks to promote the welfare of the College in every way possible. Lewis Hall and the Butterfield House are self-liquidating dormitories built under the sponsorship of the Association.

The governing body of the Associate Alumni consists of its officers and a Board of 16 Directors. Four Directors are elected each year and serve a term of four years.

ADMISSION TO COLLEGIATE COURSES

Correspondence concerning admission should be addressed to the Registrar's Office.

Every applicant for admission to the College should be at least sixteen years old, and must present proper testimonials of character, which, whenever possible, should come from the principal of the school at which the applicant has prepared for college. Enrollment of students is limited. Candidates for admission are advised to file their applications by March 1 of the year in which they plan to enroll. The application must be received at the Registrar's office by June 1 if the candidate is to be considered on the first list of selections. Application blanks may be obtained by writing the Registrar of the College.

SUBJECT REQUIREMENTS FOR ADMISSION

The subject matter requirements for admission are the same for all majors leading to the B.S. and A.B. degrees. They call for the completion of a four year high school course or its equivalent and are stated in terms of units. A unit is the equivalent of at least four recitations a week for a school year.

Fourteen and one-half units must ordinarily be offered for admission in accordance with the requirements outlined below:

1. *Prescribed*	*Units*
Algebra	1½
Plane Geometry	1
English (4 years)	3
Foreign language (2 years of 1 language)	2
History	1

2. *Electives*

In addition to the prescribed group, units to the extent of six are to be selected from the following subject matter:

a) Mathematics
b) Science
c) Foreign Language
d) History and Social Studies
e) Free electives (not more than 4 units)

Free elective subjects are those not included in groups a-d, as for example; Music, Art, Drawing, Typewriting, Aeronautics, Agriculture, and so on. Units to the limit of four may be offered as free electives provided they are counted toward the credit requirements for high school graduation. Such units must be offered on certificate since no entrance examinations are given in them. The College allows these free electives in order that the student who wishes may have some opportunity to elect among other high school offerings while at the same time covering the fundamental requirements for college work.

In high schools organizing agricultural club work under the supervision and rules of the Junior Extension Service of the College, one credit is granted for each full year of work approved by the State Leader.

METHODS OF ADMISSION

Plan A.—The above subject matter requirements may be offered on certificate. High school principles establish their own certificate grade and indicate the certification on a form furnished by the College.

In some cases students will not be fully certified for admission. In such instances, the Admissions Committee will give a candidate the choice of taking certain entrance examinations offered by the College or the College Board Scholastic Aptitude and Achievement Tests as described under Plan B. Applicants are advised to file their applications before March 1, therefore, in order that they may know well in advance what further must be done to qualify for enrollment.

Certification from a school outside New England will be acceptable if the school has the certificate privilege with the leading colleges in its area. The credentials of the Board of Regents of the State of New York are accepted provided grades are satisfactory.

Superior graduates of Vocational Schools of Agriculture in Massachusetts and Vocational Agricultural Departments in Massachusetts High Schools may be accepted for the Degree of Bachelor of Vocational Agriculture provided:

a) They are unqualifiedly recommended by the Vocational Division of the Department of Education as *bona fide* Vocational Graduates with superior ranks; and

b) That they can present at least 15 units of certified entrance, approved as to quality and quantity by the State Department of Vocational Education.

Plan B.—By this plan a student's qualifications will be based upon his school record and the results of the Scholastic Aptitude Test and three Achievement Tests of the College Entrance Examination Board. Candidates will ordinarily take these examinations either in April or June of their senior year. Application blanks and a bulletin of general information may be secured from the College Entrance Examination Board, P.O. Box 592, Princeton, New Jersey.

Massachusetts State College realizes that though almost all students will qualify under either Plan A or B, there will be a few promising candidates who for one reason or another are unable to meet fully the subject requirements for enrollment. Such applicants are requested to present their individual problems to the Registrar in order that the Admissions Committee may outline for them what must be done to qualify for enrollment.

ADMISSION TO ADVANCED STANDING

A limited number of students from approved colleges may be admitted on transfer to advance standing. Since applicants for such admission usually exceed the number that can be accepted, they are placed on a competitive basis. Acceptance will thus depend upon recommendations and quality of record.

A student applying for transfer should first of all be able to meet the entrance requirements of the Massachusetts State College. He should also submit the following:

a) A letter outlining his reasons for wishing to transfer and describing briefly the type of major work he will follow if accepted for admission.

b) An official transcript of his entrance credits and college record to be sent by the Registrar of the College he is attending. This should be forwarded as soon as possible after the close of the semester preceding the one for which he will transfer.

At the time he is notified that he can be accepted for admission the student will be given a tentative statement of the amount of transfer credit he will receive. This credit will be finally determined, however, after he has spent a year at the College and his scholarship has been thoroughly tested.

At least one consecutive year of work in residence is required of any transfer student desiring to be recommended for the Bachelor's degree.

EXAMINATION SCHEDULE

Entrance examinations for admission to Massachusetts State College will be held at the following centers:

Amherst, Stockbridge Hall, Room 114.

Cambridge, Massachusetts Institute of Technology, Massachusetts Avenue entrance.

SCHEDULE FOR ENTRANCE EXAMINATIONS JUNE 13, 14, 1947

June 13, Friday

9:00 A.M. Algebra
2:00 P.M. Language: French, German, Spanish, Latin

June 14, Saturday

9:00 A.M. English
2:00 P.M. Mental Test

SCHOOLS AND DIVISIONS OF INSTRUCTION

Resident instruction is organized on a school and divisional basis. This section of the catalogue presents the opportunities for study in these and describes the curricula available in each. Brief descriptions are given of the major work offered in the several departments and the special curricula which cut across departmental lines. The adviser in charge of each major is indicated. This adviser will aid the student in planning his program of studies and give him more complete information in regard to the qualifications for and opportunities in his particular field. For a description of specific courses refer to the Directory of Courses.

REQUIREMENTS FOR GRADUATION

At the beginning of his freshman year each student selects a school or division in which he will carry his major work. One of the fundamental objectives of all programs, however, regardless of School, is a general cultural education which should be the mark of every college graduate. With this end in view all candidates for the B.S. or A.B. degree must take certain required courses. Except for the History, these must be satisfied in the first two years. Included are English 1, 2, 25, 26; Speech 29 and 30; Economics 25; Psychology 26; and twelve semester hours of Science. In addition at least three hours of History must be elected from one of the following: History 5, 6, 25, 59, or 60.

The requirements in Physical Education must also be satisfied. All physically fit men students must take Military 1, 2, 25, and 26. A course of lectures on College Adjustments is required of women students.

Since the work of the first two years is largely directed toward a broad, general education as a foundation for the more specialized training of juniors and seniors, it follows that the program of studies for all schools is fairly uniform up to the junior year. Because of this students can readily change from one curriculum to another or even from one school to another as both freshmen and sophomores.

The minimum requirement for graduation is 60 junior-senior credits in addition to the satisfactory completion of the required and elective work of the first two years. Except upon special permission from the Scholarship Committee no junior or senior shall enroll for more than 17 or less than 14 credits each semester.

During the junior and senior years each student shall complete not less than 15 and not more than 30 credits in junior-senior courses in the department in which he is specializing.

SCHOOL OF AGRICULTURE

V. A. RICE, *Dean*

"Without food, nothing else matters." Perhaps partly for this reason at least, Agriculture is America's largest single industry. Not only is it large, but it is also extremely varied.

Over six million individual farms are now operated in the United States and many more will be needed for an "economy of abundance" in which all our citizens are to have, among other things, an adequate diet.

About one-quarter of a million scientists are now serving in Agriculture and its related fields, and more are needed if we are to increase our crop and animal production; conserve and improve our soil; control or eliminate plant and animal pests; improve the efficiency of our processing, storage, and distributing services; discover and apply new scientific and engineering principles to agricultural production and distribution, and new social and humanistic principles to rural living.

About eight million people make their living by providing necessary supplies to farmers and by moving our huge agricultural production to the consumer's table. Their tasks vary from supplying money, feeds, fertilizers, and a host of other necessities to farmers, to processing, storing and distributing the raw materials of farm production.

Agriculturally trained students find outlets for their training, ambition, and energies in the three principal fields suggested above, namely: (1) actual farm production either as farm owners or managers; (2) some scientific phase such as research on either a state, federal, or commercial basis; teaching at the secondary, collegiate, or extension level; or administration of state or federal production, conservation or financial programs; (3) the commercial phases of supplying farm machinery, electric power and equipment, seeds, feeds, fertilizers, insecticides, etc., or in processing, storing and marketing agricultural products of all sorts through either private or cooperative channels.

The work in the School of Agriculture is planned to provide a sound superstructure of applied science and technology reared on a firm and broad foundation of pure science and social and humanistic studies. Upon graduation the student will have devoted about one-quarter of his time to pure science, one-quarter to social and humanistic studies, and one-half to applied science and technology in the various fields of Agriculture.

All students in the School must successfully complete one summer of placement training on a farm, in a dairy plant or in some business allied to Agriculture as stipulated by their major adviser. It is recommended that this graduation requirement be met during the summer immediately following the Sophomore year of College residence.

During the spring of the Senior year, they must also pass a comprehensive written examination set by the Department in which they are majoring; a comprehensive oral examination covering the whole field of Agriculture administered by a visiting board of Agricultural leaders; and must present an oral paper on some personally chosen topic before another visiting board of Agricultural leaders.

In order to prevent too narrow undergraduate specialization, no student will be allowed to offer for credit more than 16 junior-senior semester courses from the Schools of Agriculture and Horticulture. In other words, one or two courses in Science or Liberal Arts must be carried during each semester of the junior and senior years.

CURRICULA IN AGRICULTURE

The School of Agriculture comprises the following Departments: Agricultural Economics and Farm Management; Agronomy; Animal Husbandry; Dairy Industry; Poultry Husbandry; and Veterinary Science. Students may major in any one of these Departments (except Veterinary Science) during the junior and senior years, or may take the curriculum in General Agriculture. The engineering phases of Agricultural production and processing are handled in the Division of Engineering.

UNIFORM FRESHMAN AND SOPHOMORE YEARS

All students majoring in Agriculture will take the following uniform curriculum during the first two years:

Freshman Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
[1]Mathematics 1, Algebra	3	Mathematics 2, Trigonometry	3
Chemistry 1, General	3	Chemistry 2, General	3
Botany 1, General	3	Zoology 1, General	3
Agricultural 1, Survey	3	Agronomy 2, Soils	3
Military 1 (men)	3	Military 2, (men)	2
Physical Education 3 (men)	1	Physical Education 4 (men)	1
Physical Education 7 (women)	2	Physical Education 8 (women)	2
		Hygiene (women)	1

Sophomore Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Economics 25, Elements	3	Psychology 26, General	3
[2]A Science		[2]A Science	3
[3]Dairy Industry 25 and or	3	[3]Animal Husbandry 26 and or	3
Poultry Husbandry 25	3	Agricultural Economics 26	3
Military 25 (men)	2	Military 26 (men)	2
Physical Education 27 (women)	2	Physical Education 28 (women)	2

[1] Students who are prepared and wish to take Calculus as sophomores should elect Mathematics 3 and 4. Candidates for the Bachelor of Vocational Agriculture degree take History in place of Mathematics.

[2] To be selected from the following:

1st Semester	*Credits*	*2nd Semester*	*Credits*
Bacteriology 31, 31A	4	Physiology 32	3
Botany 25	3	Botany 26	3
Chemistry 29	4	Chemistry 30	4
Chemistry 31	3	Chemistry 32	3
Geology 27	3	Geology 28	3
Mathematics 29	3	Mathematics 30	3
Physics 25	4	Physics 26	4
Zoology 25	3	Entomology 26	3

[3] Both Dairy Industry and Poultry Husbandry or only one may be elected in the first semester; Animal Husbandry and Agricultural Economics in the second. If only one is elected each semester, an additional Science should be selected from the above group.

JUNIOR-SENIOR CURRICULA IN AGRICULTURE

At the end of the sophomore year each student selects one of the following curricula as his major for the last two years.

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

A. H. LINDSEY, *Adviser*

The purpose of the Agricultural Economics and Farm Management Major is to train students for positions in those private and government institutions servicing the agricultural industry and to assist in the training of farm managers.

The Department maintains an inventory of current price information and agricultural production reports from which price study and analysis may be made. Statistical machines are also available for computation and analysis. The laboratories of the Department must be found in business institutions and on farms in Massachusetts with which contact is maintained.

Two curricula are available.

AGRICULTURAL ECONOMICS

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ag. Ec. 55, Mark'g Farm Prod.	3	Ag. Ec. 56, Coop. in Agri.	3
Ag. Ec. 57, Agri. Credit	3	Agricultural Electives	6
Agricultural Electives	6	General Electives	6
General Electives	3		

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Economics 81	3	Agri. Ec. 76, Farm Mgt.	4
Agri. Ec. 79, El. Statis.	3	Agricultural Electives	3
Agricultural Electives	3	General Electives	9
General Electives	6		

All Agricultural Economics majors must take the courses listed above. Specialization may be in one of the three following fields: (1) Animal Products, (2) Fruits and Vegetables, (3) Feeds and Fertilizers.

The following courses must be completed for each of these specialized fields:

Animal Products	*Fruits and Vegetables*	*Feeds and Fertilizer*
An. Husb. 53	Pomology 53	Agronomy 51
An. Husb. 73	Pomology 77	Agronomy 52
Dairy 52	Olericulture 74	Agronomy 78
Dairy 77	Olericulture 78	An. Husb. 51
Dairy 78	Food Technology 51	An. Husb. 78
Poultry 75	Food Technology 52	Poultry 51

FARM MANAGEMENT

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agri. Ec. 55, Mktg. Farm Prod.	3	Agri. Ec. 56, Coop. Agri.	3
Agri. Ec. 57, Agri. Cr.	3	Agronomy 52, Soil Util.	3
An. Husb. 51, Nutrition	3	Agri. Ec. 78, Land Econ.	3
Electives	6	Economics 58, Bus. Law	3
		Electives	3

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agri. Ec. 71, Theory	3	Agri. Ec. 76, Farm Mgt.	4
Agronomy 51, Field Crops	3	An. Husb. 78, Dairy Cattle Prod.	4
Forestry 55, Mgt. Woodlands	3	Poultry 78, Management	2
Electives	6	Electives	6

AGRONOMY

W. S. EISENMENGER, *Adviser*

The Department of Agronomy is equipped with modern soils, crops and chemical laboratories, greenhouses, and utilizes parts of the College Farm for fertilizer and plant growth experimentation, and for demonstration of soil utilization and conservation.

The courses are designed to give instruction concerning the basic knowledge of the soil and its management, fertilizers, and their uses as related to the principal products of the field. Adequate instruction given prepares students for the Soil Conservation Service, general farming and commercial services where scientific thought is emphasized.

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agron. 51, Field Crops	3	Agron. 52, Soil Utilization	3
Plant Breed'g 51, Genetics	3	Electives	9
Electives	6		

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agron. 57, Bio-Phys. of Soil and Plant	3	Agron. 78, Fertilizers	3
Chem. 51, Organic	4	Chem. 52, Organic	4
Electives	9	Electives	9

ANIMAL HUSBANDRY

V. A. RICE, *Adviser*

In the College barns are maintained Percheron horses; Ayrshire, Guernsey, Hereford, Jersey, Holstein and Milking Shorthorn cattle; Shropshire and Southdown sheep; and Chester White swine. The College Farm is operated as a livestock farm producing all its necessary roughage in the form of pastures, hay and silage and a portion of its required grain.

The broad purpose of the Animal Husbandry major is that of providing the basic training for specialists in Animal Husbandry. Upon graduation, opportunities are available in the practical, scientific or commercial fields of Animal Husbandry; i.e., livestock farming, research, teaching, administration, or in the business phases of the livestock industry.

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
An. Husb. 51, Nutrition of Farm An.	3	An. Husb. 56, Horse and Fat Stock Prod.	4
An. Husb. 53, El. Meat Packing	3		
Agron. 51, Field Crops	3	Agron. 78, Fertilizers	3
Vet. Sci. 75, Comp. Vet. Anatomy	3	Vet. Sci. 76, Gen. Vet. Pathology	3
Electives	3	Electives	6

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
An. Husb. 75, An. Breeding	4	An. Husb. 78, Dairy Cattle Production	4
An. Husb. 81, Seminar	1	An. Husb. 82, Seminar	1
Agri. Ec. 55, Mktg. Farm Products	3	Agri. Ec. 76, Farm Mgt.	4
Electives	9	Electives	9

DAIRY INDUSTRY

J. H. Frandsen, *Adviser*

Courses in Dairy Industry aim to teach the students sound, modern methods of milk handling and the manufacture of dairy products, as well as the practical application of Chemistry, Bacteriology, and Economics to the many phases of dairy work.

The Department of Dairy Industry is housed in Flint Laboratory, a building fully equipped with modern machinery for handling, marketing, and testing milk, butter, cheese, and ice cream.

In addition to the opportunities offered the Dairy Industry graduate as manager of a milk or ice cream plant, he is also prepared for college or high school teaching; for service in the fields of extension, research and investigation; and for various phases of sanitation and public health work with town, city, state or federal departments.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Dairy Ind. 77, Butter and Cheese	4	Dairy Ind. 50, Judging	1
Chem. 51, Organic	4	Dairy Ind. 52, Mkt. Milk	4
Bact. 51, Advanced	3	Chem. 52, Organic	4
Bact. 61, Public Health	3	Bact. 52, Advanced	3
Electives	6	Electives	6

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Dairy Ind. 75, Chemistry	3	Engineering 80, Dairy Mech.	2
Dairy Ind. 79, Seminar	1	Dairy Ind. 78, Ice Cream	4
Bact. 81, Applied	3	Dairy Ind. 80, Seminar	1
Electives	9	Bact. 82, Applied	3
		Electives	6

POULTRY HUSBANDRY

F. P. Jeffrey, *Adviser*

The Department gives instruction in the science, art and practices of poultry keeping, not only to students specializing in this Department, but also to those in other departments who desire supporting work in Poultry Husbandry. The major courses prepare men for the successful operation of commercial poultry and breeding farms and hatcheries either as owners or managers; for high school, college and federal work in teaching, extension and research; and as service men, specialists and managers in industrial fields allied to the Poultry industry.

Rhode Island Reds, Barred Plymouth Rocks and several other breeds are maintained on a commercial basis at the Poultry Plant. There are modern buildings in which ventilation, breeding, feeding, incubation, brooding, marketing and managerial experimental projects are taking place, with up-to-date equipment.

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Poultry Husb. 51, Nutrition	3	Poultry Husb. 52, Incubation and Brooding	3
Poultry Husb. 53, Judging	3	Poultry Husb. 54, Housing and Sant.	2
Electives	9	Physiology 32	3
		Electives	9

Senior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Poultry Husb. 75, Market'g	2	Poultry Husb. 78, Farm Org.	2
Poultry Husb. 77, Breeding	3	Poultry Husb. 82, Problems	2, 3, 4
Poultry Husb. 81, Problems	2, 3, 4	Vet. Sci. 88, Avian Path.	3
Electives	6-9	Electives	6-9

CURRICULUM IN GENERAL AGRICULTURE

V. A. Rice, *Adviser*

If, instead of majoring in any single Department, a student wishes to spread his major over the whole field of Agriculture, he may elect the following curriculum in General Agriculture:

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
An. Husb. 51, Nutrition of Farm Animals	3	Dairy Ind. 52, Market Milk	4
Agron. 51, Field Crops	3	Agron. 78, Fertilizers	3
Pomology 53, General	3	Olericulture 78, Commercial	3
Electives	6	Electives	6

Senior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Agri. Ec. 55, Mktg. Farm Prod.	3	Agri. Ec. 76, Farm Or. and Mgt.	4
Vet. Sci. 51	3	An. Husb. 78, Dairy Cattle Prod.	4
Forestry 55, Mgt. of Woodlands	3	Poultry Husb. 78, Farm Org.	2
Electives	6	Electives	6

CURRICULUM IN AGRICULTURE AND HORTICULTURE FOR EXTENSION WORK

James W. Dayton, *Adviser*

There is an excellent opportunity in the Extension Service for a limited number of students interested in county agent and 4-H Club work. For a position in this field a student should have a general agricultural and horticultural education. Apprentice training between the junior and senior years is recommended.

FRESHMAN AND SOPHOMORE YEARS

For the first two years the student follows the curriculum in either the School of Agriculture or the School of Horticulture.

JUNIOR-SENIOR CURRICULUM

The student chooses a major in Agricultural Economics, Animal Husbandry, Pomology, Poultry, or Olericulture, taking 15 credits in the department in which he is specializing and the following courses: Economics 55, Education 52, English 81, Journalism 85 and 86, Psychology 55, Speech 91 and 92.

Electives should be chosen from the following, if not included in the freshman or sophomore year, or as a major:

Agriculture 1
Agricultural Economics 26, 55, 76, 82
Agronomy 51, 78
Animal Husbandry 26, 51, 75 78, 91
Bacteriology 31
Botany 25, 51, 77, 78
Chemistry 31, 32
Dairy 25
Agricultural Engineering 72, 74
Entomology 26, 51, 80
Forestry 55, 56
Geology 27, 28
History—3 credits
Horticulture 1
Olericulture 25, 51, 74, 78
Physics 57
Pomology 26, 51, 53, 56
Veterinary 51

VETERINARY SCIENCE

Though major work in Veterinary Science is not available, the Department does offer supporting courses to assist students who expect to enter the various fields of Agriculture, Public Health, teaching and laboratory work in the biological sciences or Veterinary Medicine.

DIVISION OF ENGINEERING

——, *Head*

The Engineering Division is organized at present with two departments: Agricultural Engineering and Civil Engineering. The Agricultural Engineering Department offers curricula in Agricultural Engineering and Light Building Construction. Within the Civil Engineering Department, curricula are established in Civil Engineering, General Engineering, and Industrial Engineering. The curricula of the departments are not as yet accredited by the Engineering Council for Professional Development.

The program for the first two years is uniform for all departments.

FRESHMAN YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Mathematics 5, Trig. and Analyt. Geom.	3	Mathematics 6, Analyt., Geom. and Diff. Cals.	3
Chemistry 1, General	3	Chemistry 2, General	3
Engineering 1, Drawing	3	Engineering 2, Descrip. Geom.	3
*Architecture 1, Drawing	3	*Architecture 2, Descrip. Geom.	3
Military 1	3	Military 2	2
Physical Education 3	1	Physical Education 4	1
Elective		*Elective*	
History 5 or	3	History 6 or	3
French, German or Spanish	3	French, German or Spanish	3

* Taken in place of Engineering 1 and 2 by Light Building Construction majors.

Sophomore Year

1st Semester	*Credits*	*2d Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Mathematics 31, Calculus	4	Mathematics 32, Calc. and Diff. Eq.	4
Physics 25, Mech., Sound, Heat	4	Physics 26, Light, Electricity	4
C. E. 25, Plane Surveying	3	C.E. 26, Route Surveying	3
Engineering 21, Shop or	3	Engineering 22, Machine Shop or	3
Construction 21, Shop or	3	Construction 22, Machine Shop	3
Engineering 23, Shop	3	C.E. 34, Applied Mechs. (Statics)	3
Military 25	2	Military 26	2

Agricultural Engineering majors do not take Construction 21, 22, Engineering 23, C.E. 26.

Light Building Construction majors do not take Engineering 21, 22, 23, C.E. 26.

Civil Engineering majors do not take Engineering 21, 22, Construction 21, 22.

General and Industrial Engineering majors do not take Construction 21, 22, Engineering 23, C.E. 26.

Civil Engineering majors are required to take C.E. 28 and 30 between the sophomore and junior years.

JUNIOR-SENIOR CURRICULA

Majors in Engineering will select one of the following curricula.

AGRICULTURAL ENGINEERING

M. J. Markuson, *Adviser*

Students majoring in Agricultural Engineering are fitted for a variety of vocations along engineering lines. There are opportunities as teachers of farm mechanics in agricultural high schools as well as specialists in state and federal research and extension projects. The farm equipment business requires a large number of agricultural engineers for the design, manufacture and sale of machinery and equipment for the farm. There are openings with electric utilities in promoting the use of electricity in agriculture. The course is of value to men who retail farm machinery and building supplies or who sell and service automotive equipment. The instruction in building design and carpentry prepares a man for entering the contracting field, if his inclinations lead him in that direction.

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Psychology 26, General	3	Economics 25, Elements	3
C.E. 51, Strength of Materials	4	C.E. 70, Theory of Structures	4
Engineering 61, Prop. and Testing of Engr. Mat'l	4	Agr. Engin. 80, Dairy Mechs.	3
Agriculture 1, General	3	Agronomy 2, Soils	3
Poultry 25, General	3	Electives	3

Senior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Agr. Engineering 83, Problems	3	Agr. Engin. 72, Drain and Irrig.	2
Agr. Engin. 85, Rural Elec.	3	Agr. Engin. 74, Farm. Struc.	3
Electives	9-11	Electives	9-11

LIGHT BUILDING CONSTRUCTION

M. J. MARKUSON, *Adviser*

The field of building construction requires today men who are soundly trained in the arts, sciences, basic engineering and architecture, and business procedures to take their places in this vast industry. The opportunities in sales, design, research, contracting, manufacture, and business are of the widest.

JUNIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Psych. 26, General	3	Economics 25, Elements	3
Economics 81, Business Acc't	3	Agr. Engr. 74, Farm Struc.	3
Engineering 61, Prop. and Testing Mat'ls	3	Engin. 62, Mat'ls of Constr.	2
——, Heating and Ventilation	3	——, Air Condit. and Refrig.	3
——, Construction: Theory and Practice	3	——, Constr.: Theory and Pract.	3
Electives		Electives	

Students interested in the structural design phases of construction should take Civil Engineering 51 and 70.

SENIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Architecture 51, House Plan.	3	Economics 58, Business Law	3
Forestry 75, Manufacture and Distrib. of For. Prods.	3	Forestry 76, Wood Technology	3
——, Landscape	—	C.E. 90, Contracts, Specifs. and Estimating	3
——, Lighting and Plumb.	—	Electives	
Electives			

CIVIL ENGINEERING

G. A. MARSTON, *Adviser*

The profession of Civil Engineering once included all engineering practice other than military. Even today it includes such branches as structure of all types, highways and railroads, hydraulics as applied to drive control and power development, irrigation and drainage, municipal engineering including water supply and sewerage, and the broad field of surveying and mapping.

The curriculum in Civil Engineering is designed to prepare the student in the fundamental courses underlying the various fields of civil engineering work. A thorough preparation in Mathematics, Physics, and Chemistry is required for this specialization. English, Economics, Psychology and other non-technical subjects are part of the prescribed course of study. The last term of the senior year allows the student an elective course so that he may pursue his particular interest to a limited extent.

JUNIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
C. E. 51, Strength of Mat'ls	4	C. E. 52, Appl'd Mech. (Kinetics)	3
C. E. 55, Highway Engin.	3	C. E. 56, Transportation Engr.	3
Engr. 61, Prop. and Testing Engr. Mat'ls	3	C. E. 80, Soil Mechanics	3
Engr. 63, Heat Power I	3	C. E. 70, Theory of Structures	4
Geology 27, Physical	3	Engr. 62, Mat'ls of Constr.	2
Economics 25, Elements	3	Psychology 26, General	3

Senior Year

1st Semester	*Credits*	*2 Semester*	*Credits*
C. E. 71, Structural Design	3	C. E. 72, Advanced Structures	3
C. E. 73, Concrete Masonry	4	C. E. 78, Sanit. Engr. (Sewerage)	3
C. E. 75, Hydraulics	3	C. E. 90, Contracts and Specifs.	2
C. E. 77, Water Supply	3	Engr. 86, Elem. of Elec. Engr.	4
Engr. 67, Engr. Lab.	2	Engr. 92, Seminar	1
History 25, American Govt.	3	Economics 58, Business Law	3
		Elective	

GENERAL ENGINEERING

G. A. Marston, *Adviser*

This program is offered to meet the needs of those students whose interests are in fields of engineering other than civil. The program is designed to provide training in the physical and social sciences, as well as the fundamentals of the several kinds of engineering. Thorough training in Mathematics, Chemistry, and Physics is a requisite to specialization in any one of the branches of engineering practice. Likewise, technical leadership requires adequate preparation in English, Economics, and Psychology. Engineering courses are selected from Civil, Mechanical, and Electrical courses of study. It is expected that proficiency in a specific field will be acquired by transfer to a recognized engineering school after the junior year, or by industrial training after graduation.

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
C. E. 51, Strength of Mat'ls	4	C. E. 52, Applied Mech. (Kinetics)	3
C. E. 75, Hydraulics	3	Engr. 62, Mat'ls of Construction	2
Engr. 61, Prop. and Testing of Engr. Mat'ls	3	Engr. 64, Heat Power II (Steam)	3
Engr. 63, Heat Power I	3	Engr. 66, Heat Power III (Internal Combustion Engines)	3
Engr. 69, Kinematics	3	Engr. 86, Elements of Elect. Engr.	4
Economics 25, Elements	3	Psych. 26, General	3

Senior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Engr. 67, Engr. Lab.	2	C. E. 70, Theory of Structures	4
Engr. 83, Machine Design	3	Engr. 92, Seminar	1
History 25, American Gov't	3	Economics 58, Business Law	3
Electives	9-11	Electives	9-11

INDUSTRIAL ENGINEERING

J. D. Swenson, *Adviser*

In a state as highly industrialized as Massachusetts, there is a constant demand for young men trained in the fundamentals of Mechanical Engineering and in the economic and social aspects of modern industry. The aim of the curriculum in Industrial Engineering is to equip the graduate to enter such industrial fields as management of industrial workers, the planning and financing of production, the reduction of manufacturing costs, and many others.

The first two years of the curriculum are the same as for General Engineering. The junior and senior years are devoted principally to basic

Mechanical, Civil, and Electrical Engineering subjects, Economics, and specialized courses in Industrial Engineering principles.

JUNIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
C. E. 51, Strength of Mat'ls	4	C. E. 52, Applied Mech. (Kinetics)	3
Engr. 63, Heat Power I	3	Engr. 64, Heat Power II (Steam)	3
Economics 25, Elements	3	Engr. 86, Elements of Elec. Engr.	4
Economics 83, Business Mgt.	3	Agri. Econ. 80, Advanced Statistics	3
Agri. Econ. 79, Prin. and Methods of Statistics	3	Econ. 54, Corporation Finance	3
History 25, American Gov't	3	Psych. 26, General	3

SENIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Engr. 61, Prop. and Test of Engr. Mat'ls	3	C. E. 70, Theory of Structures	4
Engr. 67, Engr. Lab.	2	Engr. 62, Mat'ls of Construction	2
Engr. 83, Machine Design	3	Engr. 88, Time and Motion Study	3
Econ. 51, Business and Indust.	3	Engr. 92, Seminar	1
Econ. 79, Labor Problems	3	Economics 58, Business Law	3
Econ. 81, Prin. of Business Acct.	3	Econ. 82, Prin. of Business Acct.	3
		Psych. 86, Industrial	3

SCHOOL OF HOME ECONOMICS

HELEN S. MITCHELL, *Dean*

Students majoring in Home Economics are fitted for a variety of professions as well as for successful home making in the broadest sense. The curricula provide for a general education including specialization in a chosen field of interest. Students with well-rounded personalities and some scientific inclination will find opportunities for intellectual growth and professional service in fields where well-trained women are in great demand. National professional organizations in this field set standards for which students may qualify in this program.

The four-year course in Home Economics includes a study of the physical, biological, and social sciences; English, History, and Art; and opportunities for electives in other fields. In the spring of her freshman year, each student is assigned to a member of the Home Economics faculty who will serve as a friendly personal adviser and help the student decide upon her choice of electives in the subsequent years.

UNIFORM FRESHMAN AND SOPHOMORE YEARS

All students in Home Economics will take the following uniform program of studies during the first two years:

FRESHMAN YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Chemistry 1, General	3	Chemistry 2, General	3
Mathematics 1, Algebra	3	History 6, European	3
Language or History	3	Language or Zoology 1	3
Home Economics 1, Introduction	3	Home Ec. 2, Clothing Selection and Constr.	3
Physical Education 7	2	Physical Education 8	2
		Hygiene	1

Sophomore Year

1st Semester	Credits	2nd Semester	Credits
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Economics 25, Elements	3	Psychology 26, General	3
Chemistry 31, Organic	3	Chem. 32 or Physiol. 32	3
Home Ec. 31, Applied Art	3	Home Ec. 30, Foods	3
Elective	3	Elective	3
Physical Education 27	2	Physical Education 28	2
Electives:		*Electives:*	
*Bacteriology 31, 31A, Intro.	4	*Physiology 32	3
Drawing 31, Elem. Design	3	History 32, English	3
History 31, English	3	Home Ec. 26, Textiles	3
Language	3	Language	3

* Required of those wishing to qualify for American Dietetics Association membership.

JUNIOR-SENIOR CURRICULA IN HOME ECONOMICS

A student may specialize in one of several fields of Home Economics during the junior and senior years. In consultation with her faculty adviser, each student will choose courses directly related to her objective. To qualify for a B.S. degree in Home Economics a student must have a minimum of 15 credits and not more than 30 credits in Home Economics subjects during the junior and senior years. The following curricula are suggestive. Those interested in other types of professional work or commercial positions of any other type should consult with advisers about desirable electives. For students not interested in professional work, a more liberal choice of electives is possible.

Curriculum in Child Development and Family Life Education. Students interested in child development, nursery school work and social service work should choose this curriculum including subjects marked (C&F). The College is affiliated with the Merrill-Palmer School in Detroit which specializes in education for home and family life. One or two outstanding students may be selected each year to study there for one semester of the senior year.

Curriculum in Foods and Nutrition and Institution Management. This curriculum prepares for the professional fields of hospital or administrative dietitian or nutritionist and meets the requirements of courses approved by the American Dietetics Association. This curriculum is also advised for those interested in Home Service and commercial demonstrating related to foods. Courses marked (F&N) should be included in this curriculum.

Curriculum in Home Economics Education. Students planning to teach may anticipate positions in junior and senior high schools and private schools. In addition to courses required of all Home Economics students, those marked (Ed) are recommended for those planning for any form of teaching. Electives should be chosen to prepare a student to be able to teach one other subject than Home Economics, a demand frequently made of young teachers.

CURRICULUM IN EXTENSION WORK. This curriculum prepares students for such positions as home demonstration agents, 4-H Club leaders, or other positions in adult education. Apprentice training between junior and senior years is recommended. Courses marked (Ext) should be included in this curriculum.

Curriculum in TEXTILES, CLOTHING, AND RELATED ART. This curriculum is of interest to students who may wish to use clothing and related art in a general and aesthetic sense for their personal and family development. Students with ability and professional interest in the artistic and technical aspects of textiles, clothing, and related art are encouraged to go further in this field. Courses marked (T&C) should be included in this curriculum.

JUNIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
*Home Economics 51, Foods	3	Home Ec. 26, Textiles (Ed) (Ext) (T&C)	3
Home Ec. 61, Clothing Select. and Constr. (Ed) (Ext) (T&C)	3	*Home Ec. 52, Nutrition	3
*Home Ec. 75, Ec. of Household	3	Home Ec. 62, Home Furnish (Ext) (T&C)	3
Education (F&N (Ed) (Ext)	3	Home Ec. 86, Child Development (C&F) (Ed) (Ext)	3
Architecture 51, House Planning (Ext) (T&C)	3	Education (Ed)	3
Chem. 79, Physiological (F&N)	4	Home Ec. 60, Household Equipment (Ed) (Ext)	3
Journalism 85 (Ext)	3	Floriculture 58 (Ext) (T&C)	3
Electives		Food Tech. 75, Food Preserv. (F&N) (Ed)	3
		Sociology 52, Rural (Ext)	3
		Electives	

SENIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
*Home Ec. 77, Home Mtg. Pract. (either semester)	3	†Home Ec. 80, Family Life (C&F) (Ext)	3
‡Home Ec. 81, Meth. of Teaching Home Ec. (Ed) (Ext)	3	‡Home Ec. 83, Student Teaching in Home Ec. (either semester) (Ed) (Ext)	3
Home Economics 87, Adv. Clothing Problems (T&C)	3	Home Ec. 84, Spec. Probs. (C&F) (T&C)	3
Home Ec. 89, Diet Therapy (F&N)	3	Home Economics 90, Foods & Nutrition Seminar (F&N)	1
Home Ec. 91, Institutional Foods (F&N)	3	Home Economics 92, Inst. Foods and Management (F&N)	3
Art 75, Appreciation (Ext) (T&C)	3	Art 78, Renaissance and Mod. (T&C)	3
Economics 81, Prin. of Business Acct. (F&N)	3	Electives	
English 81, Creative Writing (Ext)	3		
Speech	3		
Electives 91 or 92 (Ext)			

* Required of all Home Economics Students.

‡ Acceptable as credits in Education.

† Acceptable as Sociology for American Dietetics Association.

(C&F) Recommended for Child Development and Family Life curriculum
(F&N) Recommended for Foods and Nutrition and Institution Management curriculum
(Ed) Recommended for Home Economics Education curriculum
(Ext) Recommended for Home Economics Extension curriculum
(T&C) Recommended for Textile, Clothing, and Related Art curriculum

Other suggested electives for juniors and seniors:

Animal Husbandry 91
Art 84
Chemistry 29
Economics 53, 55
Education 51, 80
Food Technology 52
History
Journalism 86
Language
Literature
Music 51, 52
Psychology 55 (Ed. credit)
Zoology 25

SCHOOL OF HORTICULTURE

R. A. Van Meter, *Dean*

The School of Horticulture offers instruction in the growing and marketing of flowers, fruits, vegetables, and ornamental shrubs; in the breeding and improvement of plants; in the active management and conservation of forests and wildlife; in the design, planting and care of ornamental plantings, and in the processing and preservation of food products.

In this broad field of Horticulture trained leadership is needed as never before. On the land we must have more well-informed men with the vision to fit developments in their business into a rapidly changing national economy. In the research laboratory we must have more men and women fully competent and eager to push ahead of known procedures and blaze the way to a more effective Horticulture geared to better living. In the classrooms of colleges and secondary schools we need more teachers who can orient their material to the economic and social development of the nation and can also bring to bear on current problems all that fundamental science has to contribute. Competent men and women are needed as never before to meet problems of great complexity which call for immediate solution.

FACILITIES FOR INSTRUCTION

The School has available the following facilities for instruction:

Greenhouses.—Splendid laboratories for propagating, growing, and studying a wide variety of flowers and vegetables are provided by nearly 20,000 square feet of greenhouse space adjacent to classrooms. The Durfee Plant Houses, in addition, contain a valuable collection of plants which illustrate chiefly the flora of tropical and subtropical regions. These are supplemented by about 5,000 square feet of hotbeds and coldframes.

Gardens.—Several acres of land are used for the culture of vegetables in great variety, florists' crops, garden flowers, bedding plants, and herbaceous perennials. A nursery is maintained for instruction in the propagation of woody ornamental plants and an excellent collection of plants used in landscape work is available in gardens and campus plantings.

Orchards.—Several hundred varieties of tree and small fruits are maintained in well equipped plantations near at hand. A fruit tree nursery offers the opportunity to become familiar with problems of propagation.

Forests.—The Mt. Toby forest of 755 acres and smaller tracts of woodland near the campus afford excellent facilities for field work in Forestry and Wildlife Management. A State Forest Nursery on the campus produces each year hundreds of thousands of seedlings of several species which are used for forest planting throughout the State.

LABORATORIES.—In addition to the facilities listed above a number of laboratories and drafting rooms are maintained by the departments of instruction. Of particular interest are the laboratories devoted to teaching and research in the manufacture, preservation, and examination of food products. Facilities are available for the use of small animals in nutritional work related to the technology of foods. The laboratory is equipped for food freezing and dehydration, and a modern cold storage warehouse is available for special studies.

CURRICULA IN HORTICULTURE

The School includes the Departments of Floriculture, Food Technology, Forestry and Wildlife Management, Landscape Architecture, Olericulture, and Pomology.

Each departmental curriculum is designed to give the student a thorough training in the Sciences and Arts involved most closely in the solution of problems in the field of that department and in the broader field of life in these times. Each curriculum provides a well considered foundation from which increasing effectiveness may be attained with further study and experience. Electives in the junior and senior years provide an opportunity for the pursuit of special interests or for the correction of deficiencies which might later be a handicap.

The program of studies for the first two years is fairly uniform for all curricula and is outlined as follows:

FRESHMAN YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Botany 1 or Zoology 1	3	Botany 1 or Zoology 1	3
[1]Chemistry 1, General	3	Chemistry 2, General	3
[2]Mathematics 1 or 3	3	Mathematics 2 or 4	3
[3]Hort. 1, Plant Propagation	3	[3]Agronomy 2, Soils	3
Military 1 (men)	3	Military 2 (men)	2
Physical Education 3 (men)	1	Physical Education 4 (men)	1
Physical Education 7 (women)	2	Physical Education 8 (women)	2
		Hygiene (women)	1

SOPHOMORE YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Economics 25 or Psychology 26	3	Psychology 26 or Economics 25	3
A Science	3	A Science	3
Electives	6	Electives	6
Military 25 (men)	2	Military 26 (men)	2
Physical Education 27 (women)	2	Physical Education 28 (women)	2

In making all elections students should be guided by the departmental recommendations for the sophomore year to be found in the following description of junior-senior curricula in Horticulture.

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[1] Majors in Landscape Architecture and Ornamental Horticulture may substitute a Foreign Language or History 5 and 6 for the year course in Chemistry.

[2] Students who expect to take Calculus in the sophomore year should elect Mathematics 3 and 4. Candidates for the Bachelor of Vocational Agriculture degree take history in place of Mathematics.

[3] Food Technology and Wildlife Management majors will take Engineering 1 (Drawing) and Agronomy 2 (Soils) or a full year of a modern language.

JUNIOR-SENIOR CURRICULA IN HORTICULTURE

Juniors and seniors in Horticulture will elect their major work in one of the following curricula:

FLORICULTURE

C. L. Thayer, *Adviser*

The courses in Floriculture provide for a comprehensive and detailed study of the practices and principles involved in the production, marketing and uses of cut flowers, flowering and foliage plants grown outdoors and under glass. Opportunities available to graduates may include: positions in various fields of commercial floriculture, such as production, wholesale marketing and retailing; employment in nurseries, on private estates and in conservatories; positions in the professional field, including graduate study, teaching in colleges and secondary schools, research and extension work under state, Federal, or other supervision.

It is advantageous for the student to determine, as soon as possible, the type of position for which he wishes to fit himself since the choice of elective courses will depend largely on his decision.

As sophomores majors are advised to take Chemistry 29 and 30 for their Sciences. First semester electives should be Botany 25 and Olericulture 25; second semester Entomology 26 and Floriculture 26.

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Flori. 51, Greenhouse Mgt.	3	Flori. 52, Flower Arrangement	3
Flori. 79, Conservatory Plants or	2	Flori. 54, Greenhouse Const.	3
Flori. 81, Herb. Gardens and Borders	3	Plant Breeding 52, Genetics	3
Plant Breeding 51, Genetics	3	Botany 51, Plant Pathology	3
Entomology 51, Pests of Special Crops	3	Electives	6
Electives	5-6		

Senior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Flori. 75, Commercial	3	Flori. 76, Commercial	3
Flori. 79 or	2	Flori. 82, Seminar	3
Flori. 81	3	Botany 68, Physiology	3
Botany 67, Physiology	3	Electives	8
Electives	8-9		

FOOD TECHNOLOGY

C. R. Fellers, *Adviser*

The curriculum in Food Technology provides scientific and applied training in the principles concerned with the processing, preservation, and packaging of foods and food products. Both home and commercial methods of food preservation are emphasized. Practical work includes canning, freezing, dehydration, and fermentation and salting. Methods of manufacture of jams, jellies, fruit juices, and beverages are a part of course work. An effort is made to apply the student's background in Chemistry and Bacteriology to Food Technology problems and food analysis.

The curriculum gives the student a broad science background with specialized knowledge in food processing and preservation. Special courses are offered for Home Economics majors who plan to teach or do extension work in foods. Major fields open to graduates include: (1) commercial work in cannery operation; (2) control and analytical work related to food products; (3) government food inspection and grading; (4) technological work in government and industry.

Ambitious students are encouraged to acquire the background which will enable them to pursue graduate work and research in the application of scientific knowledge to the technology of foods.

The selection of supporting courses depends upon the objective of the student, which should be determined as early as possible.

Students in this major should take Physics 25 and 26 in the sophomore year. In the first semester two electives should be taken from Bacteriology 31 and 31A, Chemistry 29 and Mathematics 29; in the second, two from Chemistry 30, Mathematics 30, and Physiology 32.

JUNIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Food Tech. 51, Fruit and Vegetable Products	3	Food Tech. 52, Misc. Prod.	3
Chemistry 51, Organic	4	Chemistry 52, Organic	4
Bacteriology 31, 31A	4	Bacteriology 52, Advanced	3
Electives	4-6	Electives	5-7

SUGGESTED ELECTIVES

Public Health 61	3	Public Health 62	3
A Foreign Language	3	A Foreign Language	3
Engineering 1	3	Home Ec. 52, Dietetics	3
Engineering 63	3	Olericulture 74	3
Pomology 77	3	Botany 66	3
Dairy Industry 77	4	Dairy Industry 52 or 78	4
Dairy Industry 75	3	Home Ec. 30	3
Animal Husbandry 53	3	Home Ec. 54	2
Poultry Husbandry 75	2		

SENIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Food Tech. 61, Com. Practices	3	Food Tech. 62, Problems	3
Food Tech. 71, Seminar	2	Food Tech. 72, Seminar	2
Food Tech. 91, Exam. of Food Prod.	3	Food Tech. 92, Exam. of Food Prod.	3
Bacteriology 81, Applied or	3	Bacteriology 82, Applied or	3
Chemistry 79, Physiological or	4	Food Tech. 82, Special Prod. or	2
Chemistry 65, Physical	3	Chemistry 66, Physical	3
Electives	5-7	Electives	4-7

FORESTRY AND WILDLIFE MANAGEMENT

This Department offers two curricula, one in Forestry and another in Wildlife Management.

FORESTRY

R. P. HOLDSWORTH, *Adviser*

The curriculum in Forestry is expressly designed to provide pre-professional education for men who intend to complete their technical preparation in Forestry at a graduate school of forestry. This plan is similar to those followed in preparation for careers in law or medicine. Therefore, more emphasis is given to the natural sciences basic to Forestry than to technical courses in this field. The aim is to build a sound foundation for extended study leading to a professional degree.

This plan gives both pre-professional preparation and sound orientation in the field of Forestry. It is sufficiently broad in scope to be substantial general education. Should the student decide, during his undergraduate course, that it is best for him to pursue a profession other than Forestry, he may make the change with little, if any, loss of time or credit. He has not irrevocably committed himself to a single field.

The report on Forest Education by Graves and Guise, resulting from a study sponsored by the Society of American Foresters and supported by the Carnegie Foundation, says, "If the student is well prepared in the basic sciences, in plant physiology, dendrology, plant anatomy, plant pathology, entomology, soils and surveying and drawing in addition to elementary forestry, he is is equipped to advance much further in his graduate work than the ordinary student. Such a plan is in effect at Massachusetts State College and is meeting with marked success."

The Forestry courses are designed to develop an understanding and working knowledge of the management, regulation, improvement and values of woodlands and the utilization of forest products.

Students planning to major in Forestry will follow the prescribed program of the Division of Horticulture in the freshman year. Each freshman is requested to report to the Professor of Forestry during the second week of the first semester to arrange a program of study in introductory Forestry. The object of this study is to give the student an immediate and comprehensive view of the field.

Sophomore majors in Forestry should elect Art 25 (Drawing), Botany 25, and Physics 25 in the first semester; Entomology 26, Forestry 26, and Physics 26 in the second.

The program of study for junior and senior years should be determined in conference with the adviser to forestry career students. While as much latitude as possible is allowed to meet the needs of individual cases, the group of studies selected must be cohesive and of such a nature as to satisfy the requirements for pre-professional training in the field of Forestry and for admission to a professional school of forestry. Further, course selections must be such as to satisfy the college requirements for the departmental major as set forth in the catalogue.

The junior and senior program should include courses selected from the following:

Forestry 55, 56, 57, 58, 59, 75, 76, 77
Wildlife Management 65
French, German, or Spanish
English 81, 83 or other suitable junior-senior English courses
History 59 and 60; 69 and 70
Agricultural Economics 78, 79, and 80
Economics 51 and 52
Botany 51, 58, 59 and 60; 61 and 62; 67 and 68; 75 and 76; 81
Plant Breeding 51 and 52
Geology 27 and 28; 51 and 52; 61 and 62
Agronomy 52
Civil Engineering 25
Entomology 72

The foregoing recommended list is not intended to preclude the selection of courses other than those mentioned. The acceptability of other courses will be decided by the adviser in consultation with the student on the basis of their aptness to the student's program and upon the quality of previous work done by him.

WILDLIFE MANAGEMENT

R. E. Trippensee, *Adviser*

The courses in Wildlife Management are designed both for those who desire a general understanding of the conservation of wild animals and for the professional student who expects to make his living in the wildlife field. Courses in Wildlife Conservation and Management make excellent supporting work for students of Public Administration, Economics, Zoology, Entomology, Forestry, and the teaching profession. Particular emphasis is given to the relation of wild animals and their ecology and use on both forest and farm lands.

Students who expect to continue studies for advanced degrees are eligible for graduate work either at universities or in the Graduate School at the Massachusetts State College.

The art and science of Wildlife Management is comparatively new. While many men from earlier times have had a sympathetic understanding and sometimes considerable scientific knowledge of this great national organic resource, yet for the most part waste and mismanagement have characterized men's attitude toward non-domesticated creatures. During the past decade greater emphasis has been placed on the production and control of wild animals. Production of game and fish has contributed to the recreation industry and proper management of fur bearers has brought about a better understanding of the fur industry. A third major field in relation to wild animals is the control of injurious animals, particularly the rodents.

Majors in Wildlife Management follow the prescribed freshman program for the Division of Horticulture except that French or German is required in place of Horticulture 1 and Agronomy 2. Each student is requested to report to the Professor of Wildlife Management during the second week of the first semester to arrange a program of study in Wildlife Management. The object of this study is to give the student an immediate and comprehensive view of the field.

In the first semester sophomore year Botany 25 is required. Two electives are to be chosen from the following: Bacteriology 31 and 31A, Chemistry 29, Geology 27, Mathematics 29, Physics 25, Zoology 25 or Art 25 (Drawing). In the second semester two Sciences are to be elected from the following: Chemistry 30, Entomology 26, Geology 28, Mathematics 30, Physics 26, and Physiology 32. Forestry 26 is required.

Juniors are required to take Forestry 55, 56; Wildlife Management 65, 70, and Zoology 80.

Seniors must include the following in their programs: Wildlife Management 66, 71, 73 and Zoology 86. Electives for both years will be selected under the guidance of the adviser.

Studies in Wildlife Management will be closely correlated with the work carried on by the State Division of Research and Management, and the U. S. Fish and Wildlife Service. During the junior and senior years trips will be planned to study the work at the John C. Phillips Wildlife Laboratory at Upton and to attend the New England Game Conference at Boston. Numerous other wildlife projects will also be visited.

LANDSCAPE ARCHITECTURE

L. L. Blundell, *Adviser*

Instruction in this Department has two objectives: first a contribution to general education; second a preparation of students for the professional practice of Landscape Architecture. Courses in Art give breadth of background in the underlying principles of the Fine Arts, those in Landscape Architecture apply these principles toward professional work. The Department offers optional curricula, (1) Professional Landscape Architecture, and (2) Ornamental Horticulture.

LANDSCAPE ARCHITECTURE

Students following this professional curriculum are prepared to take up work in Landscape Architecture, which leads through field experience or post-graduate study to permanent establishment in the profession.

Sophomores in the first semester elect either Botany 25 or Geology 27 for their Science and take Art 25 (Drawing) and Civil Engineering 25 as electives. In the second semester the Science is either Entomology 26 or Geology 28 and the electives Art 26 (Drafting) and Horticulture 26 (Plant Materials).

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Landscape Arch. 51, Topography	3	Landscape Arch. 52, Elements of Landscape Arch.	3
Landscape Arch. 53, Garden Design	3	Landscape Arch. 54, General Design	3
Hort. 51, Plant Materials	3	Hort. 52, Planting Design	3
Landscape Arch. 79, Construction & Maintenance alternate with Art 83	3	Electives	6
History 59, United States	3		

Senior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Landscape Arch. 81, Advanced Design	3	Landscape Arch. 76, Civic Art	3
Art 75, Art Appreciation	3	Landscape Arch. 83, Advanced Design	3
Art 77, History of Art	3	Art 78, History of Art	3
Art 83, alternate with Landscape Arch. 79	3	Landscape Arch. 80, History and Lit. of Landscape Arch.	2
Elective	3	Electives	14

Suggested Electives for Junior and Senior Years

Agronomy 53, 56, Agrostology
Art 84, Sketching
Botany 67, 68, Plant Physiology
Botany 81, Plant Ecology
Architecture 51, House Planning
English 83, Library Research
Floriculture 81, Herbaceous Borders

ORNAMENTAL HORTICULTURE

The curriculum in Ornamental Horticulture is suggested for those preferring to follow the horticultural phase of Landscape including (1) nursery work; (2) planting; and (3) maintenance of landscaped areas, such as parks and semi-public institution grounds.

Sophomores in this major will take Botany 25, Civil Engineering 25, and Art 25 in the first semester; Entomology 26, Floriculture 26, and Horticulture 26 in the second.

JUNIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Hort. 51, Plant Materials	3	Hort. 52, Planting Design	3
Landscape Arch. 51, Topography	3	Landscape Arch. 52, Construction details	3
Agronomy 53, Turf Grasses	3	Pomology 26, Small Fruits	3
History 59, United States	3	Agronomy 56, Turf Mgt.	3
Landscape Arch. 79, Construction & Maintenance alternate with Botany 81	3	History 60, United States	3

SENIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Flori. 81, Herbaceous Borders	3	Entomology 72, Shade Tree Insects	3
Landscape Arch. 53, Garden Design	3	Pomology 56, Spraying	3
Plant Breeding 51, Genetics	3	Plant Breeding 52, Advanced	3
Forestry 55, Mgt. of Woodlands	3	Botany 51, Plant Pathology	3
Botany 81, Plant Ecology Alternate with Landscape Arch. 79	3	Elective	4

OLERICULTURE

G. B. SNYDER, *Adviser*

The courses in Olericulture offer a comprehensive training in the scientific principles and commercial practices related to the culture and marketing of vegetable crops. The studies and training involved are set up to prepare graduates to undertake work in the following fields: (1) practical work in operating commercial market garden or truck farms or greenhouse establishments, (2) teaching Olericulture and related subjects in college, secondary or high schools, (3) extension work in Horticulture and Agriculture, (4) research studies with state, Federal, or private agencies, (5) state, Federal, or private inspection service agencies, and (6) the wholesale and retail marketing of vegetables and other perishable commodities.

The Department of Olericulture has facilities in greenhouses, plant houses, hot beds, machinery and equipment used in production and marketing procedures as well as land to provide the student ample opportunity to become acquainted with modern techniques and practices used in handling vegetable crops. Nearby truck farms, wholesale and retail market outlets, variety trial plots of seed companies and inspection agencies are used to demonstrate laboratory and classroom points of discussion.

The rather broad objectives of the training mean that the selection of supporting courses depends upon the specific field in which the student wishes to engage on graduation. This objective should, therefore, be determined as early as possible during the sophomore year.

Majors in Olericulture should take the following courses during the first semester of the sophomore year: Chemistry 27, Botany 25, and Olericulture 25. In the second semester they should include Chemistry 30, Entomology 26, and Pomology 26.

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Oleri. 51, Nutrient Requirements	3	Oleri. 52, Environment and Plant Culture	3
Plant Breeding 51, Genetics	3	Oleri. 54, Greenhouse Crops	3
Botany 51, Plant Pathology	3	Botany 68, Plant Physiology	3
Botany 67, Plant Physiology	3	Electives	6-8
Electives	5		

Senior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Oleri. 73, Marketing Practices	3	Oleri. 74, Merchandising of Perishables	3
Oleri. 75, Systematic	3	Oleri. 78, Commercial	3
Oleri. 81, Seminar	1	Oleri. 82, Seminar	1
Entomology 51, Pests of Special Crops	3	Electives	10
Electives	7		

POMOLOGY

R. A. Van Meter, *Adviser*

The Pomology courses provide a comprehensive training in the scientific and commercial principles concerned in the growing and marketing of apples, pears, peaches, plums, cherries, and small fruits. Major fields open to graduates include: (1) practical work in connection with the operation of fruit farms; (2) teaching in college, high school, or secondary schools of agriculture; (3) extension work in county, state, or nation; (4) research work with state, federal, or private connections; and (5) commercial work in connection with the manufacture and sale of such supplies as machinery, packages, and spraying and dusting materials. Certain supporting courses are required and their selection depends upon the objective of the student. That objective should, therefore, be determined as early as possible.

First semester sophomores are advised to elect Botany 25, Chemistry 29, and Olericulture 25. In the second semester they should take Chemistry 30, Entomology 26, and Pomology 26.

The selection of junior-senior electives should be undertaken with the help of the departmental adviser. They will depend for the most part on the interests and objectives of the student and his class record to date. The student who wishes to do college teaching, extension work, or research is advised to secure a broad foundation in Science and Liberal Arts, and to plan to enter a graduate school sooner or later. The student whose objective is growing fruit or teaching in secondary school may need to broaden his training in Horticulture and Agriculture and, again, will need all the Science and Liberal Arts that can be included in the program.

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Pomology 53, General	3	Pomology 56, Spraying	3
Pomology 75, Systematic or	4	Botany 51, Plant Pathology	3
Pomology 77, Commercial	3	Botany 65, Physiology	3
Plant Breeding 51, Genetics	3	Electives	8
Botany 67, Physiology	3		
Electives	4-5		

SENIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Pomology 81, Advanced	3	Pomology 82, Advanced	3
Pomology 75, Systematic or	4	Pomology 84, Seminar	1
Pomology 77, Commercial	3	Electives	13
Pomology 83, Seminar	1		
Electives	9-10		

CURRICULUM IN AGRICULTURE AND HORTICULTURE FOR EXTENSION WORK

JAMES W. DAYTON, *Adviser*

For a description of this curriculum see outline under School of Agriculture.

SCHOOL OF LIBERAL ARTS

A. A. MACKIMMIE, *Dean*

The School of Liberal Arts comprises the Departments of Economics, Education and Psychology, History and Sociology, and Languages and Literature. It offers a broad liberal program of studies aimed at giving the student a general cultural education in addition to professional training in certain fields. It also offers required and elective courses for students in other divisions.

Students may qualify for either the A.B. or B.S. degree. The former is conferred upon those who satisfy the divisional requirements of the freshman and sophomore years and who as juniors and seniors complete the departmental requirements for specialization in History or Languages and Literature. In addition, those satisfying the departmental requirements for specialization in Economics, Education, Psychology, or Sociology and supplementing these with eighteen credits selected from History, Languages and Literature, Philosophy, Music and Art will also earn this degree.

The B.S. degree will be awarded to those specializing in Economics, Education, Psychology, or Sociology who do not elect to meet this group requirement of eighteen credits.

Those enrolled in this School are required to take fundamental courses in the Humanities, Mathematics, and the Physical, Biological, and Social Sciences in the first two years. As a junior and senior each student selects a major from one of the following: Economics, Education, English, Fine Arts, French, German, History, Languages and Literature, Modern Languages, Political Science, Psychology, and Sociology.

CURRICULA IN LIBERAL ARTS

The courses for the first two years are largely prescribed. Each student therefore follows a fairly uniform program of studies until he begins his specialization.

FRESHMAN YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
[1]Mathematics 1, Algebra	3	Mathematics 2, Trigonometry	3
[2]Biology or Chemistry	3	Biology or Chemistry	3
[3]Foreign Language	3	Foreign Language	3
[4]History 5 or Orientation 1	3	History 6	3
Physical Education 7 (women)	2	Physical Education 8 (women)	2
Military 1 (men)	3	Military 2 (men)	2
Physical Education 3 (men)	1	Physical Education 4 (men)	1
		Hygiene (women)	1

[1] Students who are prepared and wish to take Calculus as sophomores should elect Mathematics 3 and 4.

[2] Those who elect Biology take one semester of Botany and one of Zoology.

[3] Language to be selected from French 1, 5, or 7; German 1 or 25; or Spanish 25 in the first semester; French 2, 6, or 8; German 2 or 26; or Spanish 26 in the second.

[4] Students qualifying for the A.B. degree should take History 5.

SOPHOMORE YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
[1]Economics 25	3	Psychology 26	3
Military 25 (men)	2	Military 26 (men)	2
Physical Education 27 (women)	2	Physical Education 28 (women)	2
One of the following Sciences each semester:			
Bacteriology 31, 31A	4	Physiology 32	3
Botany 25	3	Botany 26	3
Chemistry 29	4	Chemistry 30	4
Chemistry 31	3	Chemistry 32	3
Geology 27	3	Geology 28	3
Mathematics 29	3	Mathematics 30	3
Physics 25	4	Physics 26	4
Zoology 25	3	Entomology 26	3
Two electives from the following each semester:			
French 7, 29, or 31	3	French 8, 30, or 32	3
German 25	3	German 26	3
History 25	3	Economics 26	3
History 31	3	Economics 28	3
Spanish 25	3	Spanish 26	3
		History 32	3
		Sociology 28	3

[1] If Economics is taken in the first semester, Psychology will be elected in the second and *vice versa.*

JUNIOR-SENIOR CURRICULA IN LIBERAL ARTS

Major work is available in the following departments during the last two years.

ECONOMICS

The Department offers curricula in both Economics and Political Science.

ECONOMICS

P. L. GAMBLE, *Adviser*

In Economics the aims are twofold: (1) to give the student an understanding of economic theory and of the application of economics to the organization of society; (2) to provide students with the elementary training necessary for vocations in business administration.

The Department recommends that a minimum of 24 hours of junior and senior work be taken within the Department by every major, and, for some careers, the maximum of 30 hours of junior and senior credit. Students are urged to select courses in the Humanities, and especially in the allied fields of History, Philosophy, and Psychology. Those intending to major in Economics should elect Economics 26 in the sophomore year.

For the majors in the Economics Department, there are offered courses which may be combined to serve as preparation toward a number of different careers. These include existing opportunities as well as those likely to be available in the postwar period. Among others, possible careers in the following fields are open:

Accounting
Banking and Finance
Government Service
International Trade
Marketing
Public Utilities
Social Security
Statistics

Labor and Personnel Relations, Transportation and Communication.

All majors irrespective of the career selected are required to take the following courses: Economics 52, 53, 79, 81, also Agricultural Economics 79 or Mathematics 62.

POLITICAL SCIENCE

V. L. FERWERDA, *Adviser*

The work in Political Science aims to give the student an understanding of the principles of Government and their application to the organization of society; and to provide him with elementary training necessary for positions in government service.

Careers are open to students of Political Science and Public Administration in law, in many types of government service, and in organizations related to these fields.

Students intending to follow this curriculum should elect History 25 and Economics 28 in the sophomore year and the following in the junior-senior years: Economics 61, 62, 63, 64, 78, 93, and 94.

EDUCATION AND PSYCHOLOGY

The Department offers two curricula, one in Education and another in Psychology.

EDUCATION

A. W. PURVIS, *Adviser*

The courses in Education are planned (1) to prepare students to meet the minimum professional standards for teachers in secondary schools, (2) to prepare students who desire to teach Vocational Agriculture and related subjects, or students desiring specific training courses for other purposes such as Extension Work or Social Work, and (3) to provide cultural and information courses for the layman.

Teacher Training in Academic Fields. The student who desires to meet the minimum professional standards (16 credits) and to be recommended for secondary school teaching should register in the Department as early as possible in his freshman or sophomore year. To meet the standards, two plans are currently in operation, as follows:

The One-Semester Plan. Opportunity is afforded to a relatively small but highly select group of seniors each fall semester to complete all of their professional requirements in one semester. Selection in this group is based on scholarship (a college average of 80 or more is desired), personality, and the recommendation of the major department. Class work and practice teaching are scheduled in alternate weeks of that semester in such a way as to insure seven full weeks of practice in neighboring schools. Participants in this plan are chosen early in the junior year but the registration of each candidate should be in the files of the Department early in the sophomore year if possible. This plan is strongly recommended by the Department and highly favored by superintendents, and the placement of students trained under this plan is, therefore, greatly facilitated. Students selected for this opportunity will register for Education 90, 91, 92, 93 and 94 in the first semester of their senior year.

The Two-Year Plan. For students who desire to teach and who were not selected for the One-Semester Plan, or whose senior schedule in major work does not permit of that plan, a further opportunity is provided. Courses in the Department are available during the student's junior and senior years which will enable him to accumulate sufficient credits to meet the standards. Six courses should be undertaken of which two, upon arrangement beforehand with the Education adviser, may be in Psychology. In Education the student should schedule Courses 51 and 83 as basic courses and in Psychology Course 55 is preferred. Opportunity for a small amount of practice teaching will be available under Education 85 if the student's schedule permits (Tuesday and Thursday should be free for this work). While this plan does not offer the continuity of instruction nor the coordination of theory and practice which characterize the One-Semester Plan, it has been considered adequate by many superintendents in the past so far as preliminary training for prospective teachers is concerned.

Teacher-Training in Agriculture. By a cooperative agreement with the State Division of Vocational Education, persons otherwise qualified may prepare to teach Vocational Agriculture by the satisfactory completion of Education 72, 73, and 75. Education 51 is also recommended. To insure a desirable range of preparation, students who contemplate vocational teaching should consult early (in the freshman year, if possible) the Head of the Department and the State Supervisor of Agricultural Teacher-Training. A vocational teacher-training certificate is awarded by the Vocational Division to those who fully qualify.

Other Service Courses. Students preparing for Extension Work, Social Work and such opportunities will find Education 51, 52, and 53 of value.

Information and Cultural Courses. For students with a general interest in the program of Education in this and other countries as it now is and as it has developed from earlier times, Education 80, 81, 83, and 88 will be of considerable interest.

PSYCHOLOGY

C. C. NEET, *Adviser*

The courses in Psychology are intended (1) to impart an understanding of human behavior and the application of this knowledge to problems of human adjustment; (2) to give preparation for professional work in Psychology and related fields; (3) to aid in the training of school teachers.

Careers open to Psychology majors include: Psychological Teaching and Research, Vocational Guidance, Psychometrics, Personnel Work, Child Welfare, Abnormal and Clinical Psychology, and Government Service. Additional graduate training is required for certain of these careers.

In the junior and senior years majors are required to take a minimum of 21 credits in Psychology. Courses 51 and 89 are required. As broad a cultural background is advised as major programs will permit. Majors planning careers primarily in Experimental and Physiological Psychology should plan to take one or more courses during their four years in Chemistry, Mathematics, Physics, Physiology, Statistics, and Zoology. Those planning careers in Abnormal and Clinical Psychology, and in Child Welfare, should obtain a background in Education, Home Economics, Physiology, Sociology, Statistics, and Zoology; while those planning careers in Psychometrics, Vocational Guidance, Personnel Work, and Government Service should be well informed in Education, Economics, Political Science, Sociology, and Statistics.

HISTORY AND SOCIOLOGY

Curricula in History, Sociology and pre-professional Social Work are offered.

HISTORY

A. A. MACKIMMIE, *Adviser*

The courses in History are intended to impart an understanding of the people of the world and their problems through an analysis of man's development in the past. A major in this field should provide the student with a broad cultural background and a basis for good citizenship. History may have special value for the following groups:

(1) Those who plan to teach History or the Social Studies.

(2) Those who plan careers in which considerable knowledge of History is desirable. These might be in fields such as Law, Government Service, Journalism, and Library Work.

Students who wish to major in this Department are expected to conform to the institutional and divisional requirements of the freshman and sophomore years, including History 5 and 6. In choosing sophomore Liberal Arts electives they should include two semester courses in History.

In addition to the above courses, students are expected to take a minimum of 24 credits in the elective junior and senior courses. History 25 should be elected in the junior year if not taken as a sophomore elective. History 59 and 60, American History, and History 91 and 92, Historical Bibliography are required.

SOCIOLOGY

J. H. Korson, *Adviser*

The courses in Sociology are planned with two aims in view:

(1) To give the student an understanding of the factors which influence men in their activities and interests as members of society, and

(2) To prepare those students who are interested in teaching Social Studies at the high school level; or those students interested in careers with government agencies; or in careers as social workers with state or private agencies to gain the pre-professional courses necessary before embarking on such careers. Most agencies require some work on the graduate level before full-time employment is obtained, while others offer in-training opportunities to graduate majors in Sociology.

Students who expect to major in Sociology are advised to elect freshman Biology and Physiology 32. At least 18 junior-senior credits in Sociology are required. Students are also urged to select courses in Economics, History, Political Science, and Psychology.

SOCIAL WORK

J. H. Korson, *Adviser*

Students interested in pre-professional training in Social Work will follow the curriculum in Sociology. The American Association of Schools of Social Work indicates that the pre-professional subjects most closely related to professional work in this field are Economics, Political Science, Psychology, and Sociology. The Association recommends that prospective students of Social Work or Social Administration take not fewer than 12 semester hours in one of these subjects while taking less in others. It also recognizes the value of courses in Biology, History, English as well as other subject contributing to a broad cultural background for the student.

LANGUAGES AND LITERATURE

The Department of Languages and Literature offers courses in English composition and Literature; in French, German, Spanish, and Latin; in Speech; and in Music. Students majoring in this Department must conform to the institutional and divisional requirements for freshman and sophomore years, and in choosing sophomore Liberal Arts electives should include two semesters of Modern Language and one semester of English History. At the close of sophomore year they may elect any one of the following majors, with aims, requirements, and suggestions as indicated below. Though courses are also available in Spanish, Latin, and Speech, no major work is provided in these three fields.

1. GENERAL MAJORS

The aim of these majors is largely cultural. In providing this kind of background they are particularly desirable for girls whose life work will be in the home. Moreover, for many kinds of professional and commercial work—for example, Law, Medicine, Merchandising, Government Service—such liberal education is required both by professional schools and by employers.

LANGUAGES AND LITERATURE

F. P. RAND, *Adviser*

This major is intended for students who desire considerable freedom in choosing courses in English and the other languages, presumably with a cultural objective in view.

This major prescribes exactly 30 credits in elective courses in English, French, German, Spanish, Latin, or Speech.

MODERN LANGUAGE

C. F. FRAKER, *Adviser*

The courses in French, German, and Spanish are intended to give a practical knowledge of these languages for the purpose of wider reading and research, leading to a better understanding of the art and the science and the peoples concerned. A student who is primarily interested in language work but does not wish to subject himself to the restrictions of a specific major should elect Modern Language.

The requirements are these: 30 credits in elective courses in French, German, Spanish (not including courses offered to fulfill the freshman-sophomore requirement of 12 credits in modern language). However, the student may substitute for 6 of these 30 credits elective courses in English, Latin, or Speech. He may also supplement the 30 credits with not over 6 credits in elective courses in the same subjects.

FINE ARTS

D. ALVIANI and J. ROBERTSON, *Advisers*

This is an interdepartmental, interdivisional major and is offered by this Department in cooperation with the Department of Landscape Architecture. Its aim is to bring together Music, Art, and various other courses in creative self-expression. The purpose of the courses in Music is to furnish an understanding of the history and the interpretation of Music together with some opportunities for performance. In addition, the Department has made arrangements with well-qualified private teachers who will offer instruction, without course credit, in voice and instrumental music to individuals or class groups. Those available at present are:

Esther Strong Clapp, B.A.—voice
Ella Duchemin Nutter—voice
George Leland Nichols, B.A., Mus. B., Mus. M.—
    piano and organ
Maurice Freedman—violin, viola, and ensemble

The Student is required to elect not less than 28 or more than 30 credits from among the courses listed below. At least 15 credits must be from Group A or from Group B, and the student's adviser is assigned on this basis.

A	B	C
Music 1, 2	Art 25, 26	Home Economics 31
Music 51, 52	Art 27, 28	Home Economics 62
Music 61, 62	Art 31	Architecture 51
Music 75, 76	Art 75	Floriculture 58
English 81	Art 77, 78	Physical Education 61, 62, 81, 82
Speech 89	Art 83, 84	

2. SPECIFIC MAJORS

While the aim of these majors is primarily cultural, yet they do offer pre-professional training in several fields. Students intending graduate study should during their junior year inquire from the proper department in the university of their choice as to prerequisite or recommended undergraduate courses. Students may use these majors, however, to prepare immediately for certain professions, most notably that of teaching in secondary schools. Prospective teachers of English, French, or German should major accordingly and refer to the Department of Education (page 83) for information in regard to teacher-training.

ENGLISH

F. P. Rand, *Adviser*

The courses in English are intended to enable students to express themselves effectively and to appreciate humanistic values and the ideals of English-speaking people throughout their history. They offer an appropriate, and in some instances an adequate, classroom training for work in such fields as the following:

teaching
literary research
authorship
publishing
secretarial work
the ministry
editing
book trade
journalism
library work

The student must earn 30 credits in elective courses in English. However, for 6 of these he may substitute elective courses in other languages or Speech. He may also supplement the 30 credits with not over 6 additional credits in elective courses in other languages or Speech.

Students who desire to supplement their major with teacher-training should elect for the first semester of junior year: English 51, English 55, and English 65, and some time subsequently a course in American Literature and English 70.

FRENCH

S. C. Goding, *Adviser*

The courses in French are intended to give a practical knowledge of the language for the purpose of wider reading, oral communication, and research, all of this leading to a better understanding of the art and the science and people of France. Students preparing to use the language professionally are usually urged to supplement their courses here with a summer session at an approved School of French.

This major may be used as general preparation for such fields as the following:

- teaching
- international trade
- diplomatic service
- research
- interpreting
- social service in foreign areas
- government service
- translation

The student is required to earn 30 credits in French electives not including courses in French offered to satisfy the freshman-sophomore requirement of 12 credits in Modern Language. However, for 6 of these 30 credits he may substitute elective courses in other languages (including English) or Speech. He may also supplement his 30 credits with not over 6 additional credits in other elective languages (including English) or Speech.

GERMAN

A. N. JULIAN, *Adviser*

The courses in German are intended to give a practical knowledge of the language for the purpose of wider reading, oral communication, and research, all of this leading to a better understanding of the art and the science and the people of Germany. Students preparing to use the language professionally are usually urged to supplement their courses here with a summer session at an approved School of German.

This major may be used as general preparation but, in some cases, not a specific technical training for such fields as the following:

- teaching
- diplomatic service
- editing
- research
- interpreting
- travel guidance
- social service in foreign areas
- translation

The student is required to earn 30 credits in German electives, not including courses in German offered to satisfy the freshman-sophomore requirement of 12 credits in Modern Language. However, for 6 of these 30 credits he may substitute elective courses in other languages (including English) or Speech. He may also supplement his 30 credits with not over 6 additional credits in other elective languages (including English) or Speech.

DIVISION OF MILITARY SCIENCE AND TACTICS RESERVE OFFICERS' TRAINING CORPS

Colonel Richard B. Evans, *P M S & T, Head*
Lt. Colonel Francis W. Nye, *P A S & T*
Major Howard C. Parker, *Assistant P M S & T*

Under act of Congress, July 2, 1862, the College was required to provide a two-year course in military instruction under a regular army officer. All able-bodied four-year male students are required to take this course. Under act of Congress, June 3, 1916, as amended by act of Congress, September 8, 1916, there was established at this college in April, 1917, an infantry unit of the Reserve Officers' Training Corps. Following World War I, under an act of Congress, July 19, 1918, the Reserve Officers' Training Corps was in operation under the regulation of the War Department, administered by the president of the college and the professor of military science and tactics. Beginning with the fall term, 1920-21, the infantry unit of the Reserve Officers' Training Corps was converted into a horse cavalry unit. The cavalry unit continued training until June, 1943, at which time the Advanced Course ROTC was discontinued for the duration of World War II. From September, 1943 through June, 1946 the Reserve Officers' training Corps conducted courses in the basic course, branch immaterial only. In September, 1946, the Advanced Course ROTC was reinstated with an Armored Cavalry unit and an Air Corps unit.

The primary objective of the Reserve Officers' training corps is to provide systematic military training at civil educational institutions and to produce junior officers who have the qualifications and attributes essential to their progressive and continued development as officers in the Army of the United States. It is intended to attain the objective during the time the students are pursuing their general or professional studies, with the least practicable interference with their civil careers.

All male candidates for a degree in the four-year course, except veterans of World War II, must take the basic course of at least three hours a week of military training for two years. Veterans of World War II are not required to take the basic course.

The courses for the freshman and sophomore years (elementary or basic course) will not be specialized by arm or service. The course of instruction includes theoretical and practical work in all phases of military science, such as world military situation, military organization, hygiene and first aid, weapons, maps, military administration, military law and boards, and leadership, drill and exercise of command. Approximately forty per cent of the course is classroom and sixty per cent practical work.

Students who are approved by the president of the college and the professor of military science and tactics may elect to take the advanced course in their junior and senior years and may enroll in either the armored cavalry unit or air corps unit. Advanced students will be commissioned in the organized reserve corps, in the respective branch, upon graduation.

The advanced course, in either branch, consists of at least five hours per week, and an advanced summer camp of about six weeks during the summer vacation between the two years of the advanced course. Students taking the advanced course are paid by the War Department at a rate equivalent to the value of the garrison ration which at the present time is 66c per day, or about $20.00 per month. Advanced students are provided with a complete officer's uniform or paid monetary allowance in lieu thereof and required to purchase their own uniform. Advanced students are paid the pay of the 7th grade (private) while at summer camp.

Uniforms for freshman and sophomores are supplied by the government without cost. A deposit of $30.00 is required to insure return of uniform articles. The same deposit is required of advanced students when the uniform is furnished by the government.

SCHOOL OF SCIENCE

C. P. Alexander, *Acting Dean*

The School of Science includes the Departments of Bacteriology and Public Health, Botany, Chemistry, Entomology and Zoology, Geology and Mineralogy, Mathematics, Physics, and Physiology. The programs of study outlined by these departments lead to the degree of Bachelor of Science.

The School, through departments, provides professional and pre-professional training for those students planning to enter the fields of Science. Courses in Science required by, or of interest to, students enrolled in other divisions are also available.

Each department offers the usual requirements of undergraduate specialization in its particular field. These offerings enable the students to enter the fields of Science and to continue to study for advanced degrees. In addition, special curricula are provided to meet the needs of special groups of students. These include curricula for pre-medical, pre-dental, and pre-veterinary students, and for those who plan to train as laboratory technicians and to enter Public Health Service.

The curricula in the School of Science are planned to provide a broad and cultural education, as well as opportunities for specialized training. To this end the work of the first two years is largely prescribed, specialization occurring in the junior and senior years. The concentration of the junior and senior years gives students as high a proficiency in their fields of specialization as is possible without sacrificing the objectives and requirements of a well-rounded education.

CURRICULA IN SCIENCE

Freshman Year

Freshman work in the School of Science consists of definitely required subjects resulting in a fairly uniform program of studies for all students.

1st Semester	*Credits*	*2d Semester*	*Credits*
Mathematics 1 or 3	3	Mathematics 2 or 4	3
English 1, Composition	3	English 2, Composition	3
Chemistry 1, General	3	Chemistry 2, General	3
Biology (Botany 1 or Zoo. 1)	3	Biology (Botany 1 or Zoo. 1)	3
German 1 or 25, or French 1, 5, 7	3	German 2 or 26, or French 2, 6, or 8	3
Military 1 (men)	3	Military 2 (men)	2
Physical Education 3 (men)	1	Physical Education 4 (men)	1
Physical Education 7 (women)	2	Physical Education 8 (women)	2
		Hygiene (women)	1

SOPHOMORE YEAR

In the sophomore year each student must take the required English, a Social Science, a Science, and two elective courses under the direction of his adviser.

1st Semester	*Credits*	*2d Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Economics 25 or Psychology 26	3	Economics 25 or Psychology 26	3
[1]Science	3	Science	3
[2]Electives	6	Electives	6
Military 25 (men)	2	Military 26 (men)	2
Physical Education 27 (women)	2	Physical Education 28 (women)	2

[1] Elect one of the following:

1st Semester	*Credits*	*2d Semester*	*Credits*
Bacteriology 31, 31A	4	Botany 26	3
Botany 25	3	Chemistry 30	4
Chemistry 29	4	Chemistry 32	3
Chemistry 31	3	Entomology 26	3
Geology 27	3	Geology 28	3
Mathematics 29	3	Mathematics 30	3
Physics 25	4	Physics 26	4
Zoology 25	3	Physiology 32	3

[2] To consist of additional sciences selected from the above list, or a Science and a Language. In selecting the required and elective courses in Science and Language, students should be guided by the recommendations for sophomore work given under the description of Junior-Senior curricula that follows.

JUNIOR-SENIOR CURRICULA IN SCIENCE

Major work is provided in the following departments. In addition, there are other special curricula both pre-professional and professional that cut across departmental lines. Students desiring complete information in regard to the opportunities and program of study in each curriculum are expected to consult the adviser in charge.

BACTERIOLOGY AND PUBLIC HEALTH

L. A. BRADLEY, *Adviser*

The Department offers three curricula one in Bacteriology, one in Public Health, and the other in Medical Technology. For a description of the special curricula in Public Health and Medical Technology see pages 102 and 104 of the catalogue.

The courses in Bacteriology have been planned to furnish (1) a general training in this field for college students; (2) specialization for those contemplating a professional career in Bacteriology.

Majors in Bacteriology should elect the following in the sophomore year: Chemistry 29, 30; Physics 25, 26; Bacteriology 31, 31A; Physiology 32. The Physics may be deferred until the junior year to allow for additional language study.

Juniors and seniors must take Chemistry 51, 52, and 79; and Botany 66 in addition to the required work in Bacteriology and Public Health.

BOTANY

A. V. OSMUN, *Adviser.*

The purpose of the courses in Botany is primarily to provide a thorough background for specialization in the science, and secondarily to support and supplement the work of other fields in which knowledge of plant life is held to be important. Certain courses should likewise prove of interest and value to the general student.

Those who wish to specialize in Botany will find here an ample field and an adequate opportunity for advanced undergraduate study. Postgraduate training, often with provision for financial aid, is available in most graduate institutions, and many teaching, research and industrial positions in schools, and colleges, experiment stations, Federal and state services and private enterprise are open to the trained botanist.

The curriculum offers to the student an opportunity to acquire either a broad general knowledge of Botany, or to devote himself to more extensive study in one of the major divisions of the science, such as Plant Morphology and Taxonomy, Plant Physiology, Mycology and Plant Pathology. Under the direction of his adviser each student selects a program of courses in Botany and other sciences, humanities and arts which seems best adapted to his particular botanical objectives.

Specialization in Botany assumes the satisfactory completion of certain basic and supporting courses prior to the junior year. These include Botany 1, 25 and 26; Chemistry 1, 2, 29 and 30; and a Modern Language. Two years of German are advised.

The junior-senior program requires that courses in Botany to the amount of 15-30 credits be chosen under the guidance of the adviser. He will also make recommendations in regard to electives.

CHEMISTRY

W. S. RITCHIE, *Adviser*

The objectives in Chemistry are to give the student an understanding of the subject which will enable him to appreciate the relation of Chemistry to other sciences, and to industry, and to provide training for those who intend to become teachers and workers in the allied sciences, and for those who wish to go on to graduate study and a professional career in Chemistry. Completion of the course in Chemistry fits the student for positions in the chemical industries and related fields as well as in the agricultural industry, for employment in state and Federal agricultural experiment stations and commercial laboratories and for teaching.

Students planning to major in Chemistry should elect German in the freshman year. The sophomore program should include Chemistry 29, 30; Mathematics 29, 30; and Physics 25, 26.

Work for the junior and senior years includes required courses in Analytical, Organic, and Physical Chemistry and the possibility of election in related and supporting fields. While the major is arranged to provide general and fundamental training in the science, work in the humanities and social sciences is also recommended. The desirability and necessity of a well rounded education must not be overlooked.

ENTOMOLOGY AND ZOOLOGY

This Department offers two curricula, one in Entomology and the other in Zoology. In addition, courses in Biological Field Studies are available. These constitute a part of the required work in the Special Curriculum in Recreational Leadership described on page 105.

ENTOMOLOGY

C. P. Alexander, *Adviser*

Courses in Entomology serve two purposes: (1) to give students a general knowledge of insects, particularly in their relations to man, his crops, his domestic animals, and his health; (2) to train students desiring to specialize in Entomology to become United States, state, or experiment station entomologists, teachers, forest entomologists, tree wardens, or to occupy other position where an expert knowledge of insects is required.

The courses in Beekeeping are offered with the following aims: (1) to meet the increase in vocational opportunities for the production of bees or honey as a business; (2) to study the beekeeping needs of fruit and truck-crop industries and the part that bees play in the pollination of flowers; (3) to acquaint the student with a recreational field that can be made profitable.

Majors are required to take Chemistry 29 and Entomology 26 in the sophomore year. Other recommended sophomore subjects are Botany 25, 26; Zoology 25, and either French or German.

Juniors and seniors should support their work in Entomology with the following courses: Chemistry 51, Botany 26, Zoology 50, 69, 85, and Pomology 56.

ZOOLOGY

G. L. Woodside, *Adviser*

The courses in Zoology have two major aims: (1) to offer students an opportunity to develop an understanding and appreciation of the scientific method as a part of a liberal education; and (2) to provide training of a more vocational nature for prospective graduate students in Biology, Medicine, Dentistry, and related fields, as well as future teachers and laboratory technicians in the biological sciences.

Majors should include the following in the sophomore year: Zoology 25, Entomology 26, Chemistry 29 and 30, Physics 25 and 26.

In addition to the required work in Zoology in the junior and senior years Chemistry 51, and 52, Physiology 32, 75, and 76 and Entomology 79 should be included.

GEOLOGY AND MINERALOGY

L. R. Wilson, *Adviser*

The offerings in Geology and Mineralogy are intended chiefly for those who wish to gain some acquaintance with one or more branches of earth science. For the general student prerequisite requirements are reduced to a minimum. A program of moderate specialization may be provided for science majors who are interested in Geology.

To major in Geology a student must complete thirty credit hours of work in the department. Those who have completed nine or more credits in Geology in addition to the sophomore courses by the end of the junior year, and who wish to satisfy major requirements for graduation in the field of Geology, will be given individual or group problems in the senior year. The nature of the work will depend upon student interest and preparation. In any junior or senior course in Geology an additional period per week without credit may be required of students who specialize in this field. Chemistry through qualitative analysis and a year's work in college Physics represent minimum requirements in these respective fields for undergraduate specialization in Physical Geology. For those interested in pursuing studies in stratigraphy or paleontology, work beyond the freshman year in the systematic aspects of both Botany and Zoology is essential for satisfactory progress.

MATHEMATICS

F. C. Moore, *Adviser*

The Department offers courses designed to furnish a cultural backgroup as well as a foundation for both undergraduate and graduate work in such fields of Science as Physics and Chemistry, in Engineering and other technical subjects.

Major work is available for those desiring to make the teaching of Mathematics and Science, actuarial and statistical work their profession.

Each student who plans to major in Mathematics will, upon consultation with his adviser, select a program of studies best suited to his individual needs. He is required to take Mathematics 29 and 30 in the sophomore year and is advised to include Physics 25 and 26.

During the junior and senior years each major must complete at least fifteen credits in the following courses: Mathematics 55, 60, 62, 65, 66, 71, 72, 91, and 92.

PHYSICS

W. F. Powers, *Adviser*

The Physics courses give opportunity for the study of basic physical laws and phenomena of nature.

Emphasis is put on the applications of the principles studied. From these courses students may make a selection to satisfy a major in Physics, or to comply with requirements for graduate study.

Majors must take Physics 25, 26 and Mathematics 29, 30 in the sophomore year. They are also advised to elect Chemistry 31 and 32.

Juniors and seniors should plan to take all of the courses offered by the Department. These courses should be supported by additional work in Mathematics and Chemistry. As the interests of major students will vary, the Department members will be glad to make suggestions to individuals regarding their program of studies.

PHYSIOLOGY

G. E. Gage, *Adviser*

The courses in Physiology have been planned to furnish fundamental knowledge concerning function and activities of cells and organic structures in relation to man and animals. A major program and also supplementary work are available for the training of students in Psychology, Zoology, Bacteriology, and other Biological Sciences. Those interested in Nutrition, Human or Veterinary Medicine, Public Health, teaching, and in becoming laboratory or medical technicians will also find supporting courses in this field desirable.

Students planning to major in Physiology should elect Bacteriology 31 and 31A, Physics 25 and 26, and Physiology 32 in the sophomore year. The other elective should be in Liberal Arts, preferably a Foreign Language.

Majors should take Chemistry 51 and 52 and Bacteriology 52 in the junior year; Bacteriology 81 and 82, or 85, Zoology 65 and 66 in the senior year in addition to the required work in Physiology. German 25 and 26 and History 61 are also recommended.

SPECIAL CURRICULA IN SCIENCE

In addition to the major work provided in the Departments previously listed the following special curricula are available. For the most part these cut across departmental and even divisional lines. Students in these curricula follow the uniform science program for the freshman year and the recommendation in regard to sophomore electives indicated in each curriculum.

CURRICULUM IN MEDICAL TECHNOLOGY

L. A. Bradley, *Adviser*

This curriculum provides a broad fundamental training for young women who plan to qualify as medical technologists. The program meets the basic collegiate requirements of the Registry of Medical Technologists of the American Society of Clinical Pathologists.

During the summer following the junior year the College Placement Service will arrange for a try-out experience in a hospital laboratory for any major wishing it. In the senior year the Placement Officer will assist properly qualified students in arranging for the required clinical instruction in an approved school for technologists or an apprenticeship under the supervision of a qualified clinical pathologist.

Students taking this curriculum should complete the following Sciences in the sophomore year: Bacteriology 31, 31A; Chemistry 29, 30; and Physiology 32.

The junior-senior program follows:

JUNIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Bacteriology 51, Advanced	3	Bacteriology 52, Advanced	3
Chemistry 51, Organic	4	Chemistry 52, Organic	4
Public Health 61, Sanitation	3	Public Health 62, Sanitation	3
Electives	6	Electives	6

SENIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Bacteriology 81, Applied	3	Bacteriology 82, Applied	3
Bacteriology 85, Immunology	3	Bacteriology 88, Epidemiology and Communicable Disease Control	3
Chemistry 79, Physiological	4	Chemistry 80, Clinical	3
Electives	6	Electives	6

PRE-MEDICAL CURRICULUM

G. L. WOODSIDE, *Adviser*

Students planning to enter Medical School should register for this curriculum. Those who successfully complete the program will be eligible for admission to Class A Medical Schools. Usually, the applicants for admission to such schools, however, far exceed the number that can be accepted. Students must realize, therefore, that only well qualified, high ranking candidates may be admitted.

Although some Medical Schools do not require the Bachelor's degree for admission, it is highly desirable that a student plan to complete the work for the B.S. or A.B. degree before enrolling. Preference is given to those applicants with the most complete training as well as high standing.

The pre-medical curriculum, with minor changes will also satisfy pre-dental and pre-veterinary requirements. Students interested in any of these curricula should consult with the adviser, Dr. Woodside.

During the first two years students in this curriculum follow the science program as outlined on page 90. In the sophomore year they should elect the following: Chemistry 25, 26; Physics 25, 26; German 25, 26.

JUNIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Chemistry 51, Organic	4	Chemistry 52, Organic	4
Zoology 65, Comp. Vert. Anatomy	3	Zoology 66, Comp. Vert. Anatomy	3
History	3	[1]Electives	9
[1]Electives	6		

SENIOR YEAR

1st Semester	*Credits*	*2d Semester*	*Credits*
Zoology 75, Vert. Embryology	3	Zoology 76, Vert. Embryology	3
Chemistry 75, Physical	3	Chemistry 30, Quantitative	3
[1]Electives	9	[1]Electives	9

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[1] The electives of the junior and senior years should be chosen chiefly from Liberal Arts and Social Sciences since Class A Medical Schools uniformly stress the importance of a broad cultural education.

CURRICULUM IN PUBLIC HEALTH

L. A. Bradley, *Adviser*

Through the cooperation of several departments of the College and the Massachusetts Department of Public Health, curricula are provided for (1) a limited number of students interested in the many phases of public health service for which graduate work in medical or engineering schools is not essential; and (2) students planning graduate work in Sanitary Engineering.

Particular attention will be given to the training of sanitarians, district sanitary officers, food and milk inspectors, water and sewage treatment plant operators, technicians for public health laboratories, and agents for local boards of health. Students planning graduate work in Sanitary Engineering must also take mathematics 29 and 30 (calculus) before the end of their Junior year..

The following curriculum is required of all upperclassmen:

Junior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Bacteriology 51, Advanced	3	Public Health 62, Sanitation	3
Public Health 61, Sanitation	3	Bacteriology 90, Sanitary	3
Chemistry 31 or 51, Organic	3-4	Chemistry 32 or 52, Organic	3-4
Electives	6	Electives	6

Senior Year

1st Semester	*Credits*	*2d Semester*	*Credits*
Agr. Econ. 79, Statistics	3	Public Health 86, Field Studies in Sanitation	3
Public Health 84, Administration	3	Public Health 88, Epidemiology Communicable Disease Control	3
Electives	9	Electives	10

ELECTIVES

During the Junior-Senior years, students elect a minimum of 24 semester credits from the following:

1st Semester	*Credits*	*2d Semester*	*Credits*
An. Hus. 53, Elements of Meat Packing	3	Bact. 82, Food	3
Chem. 63, Water and Sewage	3	Public Health 64, Planktology	3
Econ. 61, Public Administration	3	Bot. 66, Industrial Mycology	3
Engineering 1, Drawing	3	Dairy Ind. 52, Market Milk	4
Engineering 77, Water Supply	3	Econ. 62, Public Administration	3
Food Tech. 75, Food Preservation	3	Engin. 78, Sewerage	3
Forestry 51, Management of Water Sheds	3	Ent. 60, Pest Control	3
Geol. 27, Physical Geology	3	Ent. 74, Medical Ent.	3
Vet. Sci. 51, Animal Hygiene	3	Food Tech. 92, Food Analysis	3
Zool. 69, Parasitology	3	Home Ec. 54, Nutrition	3

CURRICULUM IN RECREATIONAL LEADERSHIP

W. G. Vinal, *Adviser*

This curriculum is opened to a limited number of recommended students who seek training as leaders in the various recreational activities (physical, park, community, nature, camping, and the like).

The course of each student is planned to fit his personal aims and aptitudes. The freshman and sophomore requirements are those of the Division of Physical and Biological Sciences. The required upperclass courses are Bacteriology 61, Art 75; Biological Field Studies 51 and 52, 61 and 62 or Physical Education 73. A minimum of 15 semester hours in some one field related to that branch of Recreational Leadership chosen by the student is expected.

Because programs of study vary with the individual student, three types of curricula taken by former students are given below:

PLAYGROUND LEADER IN URBAN AREAS

Junior Year		Senior Year	
German 25	Physical Educ. 53	Bacteriology 61	Entomology 26
Physics 25	German 26	Land Arch 51	English 64
Forestry 55	Forestry 56	Land Arch 79	Land Arch 52
Biol. Field Stu. 51	Biol. Field Stu. 52	Art 75	Bacteriology 62
Physical Educ. 55	Physical Educ. 72	Biol. Field Stu. 61	Biol. Field Stu. 62
		Physical Educ. 71	Physical Educ. 52

RANGER NATURALIST IN METROPOLITAN AND NATIONAL PARKS

Military Science 51	Military Sci. 52	Military Sci. 75	Military Sci. 76
Sociology 51	Land Arch 52	Botany 81	Botany 84
Land Arch 51	Economics 25	Land Arch 75	Geology 62
Bacteriology 61	Astronomy 58	Botany 25	Physical Educ. 72
Forestry 55	Forestry 56	Speech 91	Biol. Field Stu. 62
Biol. Field Stu. 51	Biol. Field Stu. 52	Biol. Field Stu. 61	

COMMUNITY RECREATION

Sociology 51	Entomology 90	English 65	English 51
Education 51	Speech 89	Speech 91	English 68
French 29	French 30	French 71	Home Economics 80
Bacteriology 61	English 66	Land Arch 75	Physical Ed. 82
Physical Ed. 61	Physical Ed. 62	Physical Ed. 81	Biol. Field Stu. 62
Biol. Field Stu. 51	Biol. Field Stu. 52	Biol. Field Stu. 61	Physics 58
Music 61			

DIVISION OF PHYSICAL EDUCATION

C. S. Hicks, *Head*

The Division of Physical Education includes the Departments of Athletics, Student Health, Physical Education for Men, and Physical Education for Women. It offers one major, that in Physical Education for Men.

INTERCOLLEGIATE ATHLETICS

C. S. Hicks, *Director*

The following men are in charge of the coaching of the intercollegiate teams:

Walter G. Hargesheimer, Head Coach of Football, Basketball, and Tennis; L. L. Derby, Coach of Track and Cross Country; L. E. Briggs, Coach of Soccer; Joseph R. Rogers, Jr., Coach of Swimming; Francis J.

Reil, Coach of Baseball; *Sidney W. Kauffman, Intramural Sports; Thomas W. Eck, Assistant Coach of Football and in charge of publicity; Stanley Salwak serving in the absence of Sidney Kauffman.

STUDENT HEALTH

Dr. E. J. Radcliffe, *Head*

Regulations in regard to Student Health are outlined on page 48.

All freshmen are required to attend a series of lectures on personal hygiene given by the Health Service staff. For men, these lectures are included in the Military program; for women, they are designated as Hygiene.

PHYSICAL EDUCATION FOR MEN

H. M. Gore, *Adviser*

The work in the Department of Physical Education for Men includes required and elective physical fitness activity courses for all four years; and the opportunity to major the last two years in Physical Education; or to minor in Physical Education, Teacher-coaching or Physical Recreation.

The physical fitness activities courses for men, which are required the first two years and urged upon the upper classmen are planned to help every man student to at least meet accepted reasonable minimum standards of physical fitness; and then, through regularity and continuity of progressively planned exercise, maintain good physical condition throughout his college career. Every freshman must pass a reasonable physical fitness rating and learn to swim.

The majors and minors in Physical Education are so planned as to qualify volunteer and professional leaders and instructors in Physical Education, Athletics, Health and Safety Education, and Physical Recreation for service and adult organization, organized summer camps, public service and industrial groups, schools and colleges.

The outline of the Physical Education Major follows. It is contemplated that Physical Education majors will be well trained in general scientific and cultural subjects as well as to be themselves physically fit. They are urged to elect advanced Military and courses in Education. Those planning on Teacher-Coaching should take additional work in their particular subject matter fields.

Freshman Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Mathematics 1, Algebra	3	Mathematics 2, Trig.	3
Physical Education 5, Survey	3	Physical Education 22, First Aid	3
Military 1	3	Military 2	2
Physical Education 3, Activity	1	Physical Education 4, Activity	1
Elect two:		*Elect two:*	
Chemistry 1, General	3	Chemistry 2, General	3
Botany 1, Introductory	3	Zoology 1, Introductory	3
History 5, Mod. European Civiliz.	3	History 6, Mod. Europ. Civiliz.	3

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* On leave of absence.

Sophomore Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Literature	2	English 26, Literature	2
Speech 29	1	Speech 30	1
Economics 25, Elements	3	Psychology 26, General	3
Physical Education 45, History	2	Physical Education, Aquatics and Water Safety	3
Military 25	2	Military 26	2
Physical Education 33, Activity	1	Physical Education 34, Activity	1
Electives (one to be a science)	6	Electives (one to be a science)	6
Electives:		*Electives:*	
Bacteriology 31, Introductory	2	Physiology 32	3
Bacteriology 31A, Intro Lab.	2	Chemistry 32, Organic	3
Chemistry 29, Qualitative	4	Physics 26, Light, Electricity	4
Chemistry 31, Organic	3	Language	3
Physics 25, Mech., Sound, Heat	4	History	3
Language	3	Physical Education 43, Officiating	1
History 25, American Govt.	3	Physical Education 57, Camping	3

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Physical Ed. 53, Elem. Schools	3	Physical Ed. 54, Special Math.	3
Physical Education 51, Coaching	3	Physical Education 52, Coaching	3
Physical Education 63, Activity	1	Physical Education 77, Anatomy	3
Electives	9	Physical Education 64, Activity	1
		Electives	6

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Physical Ed. 71, Spec. Problems	3	Physical Ed. 56, Administration	3
Education 85, Prac. Teach.	3	Physical Ed. 78, Kinesiology	3
Physical Ed. 83, Activity	1	Physical Ed. 84, Activity	1
Electives	9	Electives	9

To comply with state certification requirements in education, Physical Education majors must take Education 51, Methods; Education 83, Secondary; Educational Physcology 55; and Education 85, Practice Teaching. It is recommended, for elective education courses, that Education 88, Curriculum, be first choice and if impossible to schedule it, that Education 53 Tests and Measurements be taken.

PHYSICAL EDUCATION FOR WOMEN

Ruth J. Totman, *Adviser*

The courses in Physical Education for Women are planned to provide recreative activity, to develop body grace and efficiency, and to increase health and vigor. No major is available.

The first and second year women students are required to take Physical Education three times a week and are given two credits for each semester of satisfactory work. Third and fourth year students may elect Physical Education 61-62 or 81-82.

A physical examination is given before classes begin in the fall. Girls who are restricted from unlimited activity are placed in classes suitable to their ability. Girls who are restricted from all class activity are assigned to rest periods three times a week and receive their regular Physical Education credit for satisfactory attendance. A similar rest program is substituted for the regular activity program when girls are temporarily incapacitated.

DIRECTORY OF COURSES

This section contains a list of courses offered in the regular sessions of the College. Course descriptions are arranged alphabetically according to subject matter fields. If any course cannot be found readily, refer to the General Index in the back of the catalogue. A separate bulletin will outline those available during the summer. The College reserves the right to withdraw any course for which an insufficient number of students enroll.

Courses are designated by numbers as follows: freshman 1-24 inclusive; sophomore 25-49 inclusive; junior 50-74 inclusive; senior 75-99 inclusive. Odd numbers designate courses given in the first semester, even numbers those offered during the second. Credit is indicated in terms of semester hours. Where possible, the class schedule follows the course description. A complete schedule of class hours is published at the beginning of each semester.

Students are referred to the section on Divisions of Study and Curricula for a statement of graduation requirements and majors available.

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

Professor Lindsey, Professor Barrett, Mr. Hicks

26. (II) **Economics of Agricultural Production.**—This course considers the principles of production economics. An analysis of specialization, comparative advantage, diminishing, constant, and increasing costs and returns applied to the individual establishment as well as to the nation. A careful study of the combination of the factors of production is made considering the individual's adjustment when operating under monopolistic competition, laissez-faire, and monopoly. Finally, dynamic and static factors are considered in relation to their effect on the individual's production, on the economy of cities and nations, and on the international economy.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Mr. Hicks.
Prerequisite, Economics 25.

55. (I) **Marketing Farm Products.**—Not open to students who have taken or are taking Economics 53. An analysis of present and past systems of assembling, transporting, distributing, and grading agricultural products. Such aspects as the adjustment of production and consumption, price formation, channels of distribution, price differentials and margins, public policy, market reporting and forecasting, and a study of the marketing of major agriculture products are considered. Geographic, future,

and quality differentials are studied from the agricultural and commercial standpoint.

2 class hours; 1 2-hour laboratory period. Credit 3.
11:00-11:50 Tu. Th. 2 hours by arrangement. Mr. HICKS.

56. (II) THE FUNDAMENTALS OF COOPERATION.—A study of the philosophy and principles of cooperation in Europe and in the United States. The history of cooperation, legal consideration, management, financing, membership relations, methods of formation, sales methods and policies are given full attention. Progress in the cooperative marketing of different agricultural products is studied.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Mr. HICKS.

57. (I) AGRICULTURAL CREDIT AND LAND APPRAISAL (1947-48).—A study of the development, use, functions, and operations of public and private credit institutions which are available to agriculture. Special emphasis is given to the practical aspects of credit policy and land appraisal. Given in alternate years.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor LINDSEY.

71. (I) AGRICULTURAL ECONOMIC THEORY (1946-47).—The course is a comparative and critical study of the significant contributions of the leading economists to the theory of agricultural economics from the time of Adam Smith to the present. Given in alternate years.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor LINDSEY.

76. (II) FARM ORGANIZATION AND MANAGEMENT.—This course analyzes the functions of the farmer as a business proprietor. Both the external and internal economic forces affecting the farm business are considered, such as selection and combination of factors of farm production, choice and combination of farm enterprises, the economical use of funds, nature of farming costs and adjustments to price changes. The use of farm records and accounts as a basis for planning and budgeting is emphasized. "Scientific management" as applied to efficient farm technique is taken up. The last part of the semester the course will be given over to the specific study of selected farms and the practical application of the principles and practices already discussed. Field trips are required. The approximate expense for travel is five dollars.

2 class hours; 1 2-hour and 1 4-hour laboratory period Credit, 4.
Prerequisite, Agricultural Economics 26. Professor BARRETT.

78. (II) PRINCIPLES AND PROBLEMS OF LAND ECONOMICS.—A study of the major contributions by outstanding economic writers to theoretical land economics; a review of American land policies; a presentation of the principles, techniques, and objectives involved in modern land use planning; and a discussion of contemporary land problems in the United States.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor LINDSEY.

79. (I) PRINCIPLES AND METHODS OF STATISTICS.—Methods of collecting, analyzing, interpreting, and presenting statistical data. Sampling principles, averages, dispersion measures, index numbers, time series and simple correlation are specific fields covered. Practical problems in agriculture and business are given in the laboratory.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Professor LINDSEY and Mr. HICKS.

80. (II) ADVANCED STATISTICS.—This course is primarily devoted to linear and curvilinear multiple correlation analysis. Machine and short-cut graphic methods are used. Some time will also be devoted to probability and analysis of variance.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Professor LINDSEY.

82. (II) ADVANCED FARM OPERATION.—For seniors specializing in agriculture; others by permission of instructor. A study of the efficiency of operations on a specific farm.

3 hours or equivalent. Credit, 3.
Hours by arrangement. Professor BARRETT.

89. (I) 90. (II) PROBLEMS IN AGRICULTURAL ECONOMICS.—This course may be conducted as a seminar or individuals may be assigned specific problems in price, credit or market analysis. It may also cover problems in land use and farm management.

Credit, 1-3.
Hours by arrangement. The DEPARTMENT.

AGRONOMY

Professor EISENMENGER, Associate Professor DICKINSON, Assistant Professor THAYER, Assistant Professor EVERSON, Mr. ZAK, Mr. RUSSELL

2. (II) SOILS.—This is an elementary course relating soils and their management to crop growth. This course is designed to give the student a broad background in soil science and its direct application to practical field problems. The course itself is presented with the object of introducing to the student the properties of soils and their influence upon the production of crops. The laboratory work is planned with the purpose of furnishing direct evidence and a better understanding of the lecture material. Principles are stressed relating fertilizer and liming practices to soil fertility.

2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu. Th.; 3:00-4:50 W. or Th.
Assistant Professor EVERSON and Mr. ZAK.

51. (I) FIELD CROPS.—A study of the field crops of the United States which will include their uses and improvement, with their soil and climatic requirements. Emphasis will be given to the best farm practices of the

northeastern states as to rotation, liming, fertilizing, seeding methods, tillage, disease and insect control, and to methods of harvesting and storage. As an individual problem, each student must make a detailed plan of crop production for the actual conditions of some New England farm.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 Th. Assistant Professor THAYER.

52. (II) SOIL UTILIZATION.—This course deals with the relationships of higher plants to their environment. Natural conditions existing in commercial crop production areas are studied and the adaptation of soil to specific crops through the use of soil amendments. Land use in the great soil groups is considered and agronomic practices which are related to these groups are studied. Certain economic factors are considered in their relationship to readjustment of cropping areas.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Assistant Professor EVERSON.

57. (I) THE BIO-PHYSICO-CHEMICAL INTERRELATIONS OF THE SOIL AND PLANT.—The purpose of this course is to inform the student of relationships existing between biological, physical, chemical, and climatological forces interacting in soil formation. Studies are made of soil regions, great soil groups, and series. Consideration is given to the character of natural plant cover. This course is equally valuable for those students interested in soil use or those desirous of entering civil service in agronomy.

3 class hours. Credit, 3.
Assistant Professor EVERSON.

77. (I) CROP IMPROVEMENT.—Theory and practice of the improvement of field crops by breeding and selection.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Assistant Professor EVERSON.
Prerequisite, Agronomy 51.

78. (II) FERTILIZERS.—The primary purpose of this course is to relate soils and fertilizers to plant growth. Studies are made of fertilizer practices in the United States and Europe. In the early part of the course consideration is given to the history of agronomic development, with special emphasis upon early discoveries and causes of failure in early research. Later in the course, studies are made of factors which relate fertilizers and soils to plant growth. The laboratory work illustrates certain phenomena which have received class attention.

2 class hours; 1 2-hour laboratory period. Credits, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 Th. Assistant Professor EVERSON.

79. (I) SOIL PHYSICS.—For seniors specializing in agronomy. The mechanical testing of soils.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor EVERSON.

80. (II) ELEMENTS OF SOIL MECHANICS.—A study is made of the physical and mechanical principles underlying soil mechanics. The

course will include the study of the origin and basic classification of soils; the physics and mechanics of soil moisture relationships such as plasticity constants, seepage, frost action, capillarity and permeability. This is followed by a study of the mechanics of earth masses, dealing with stress and strain relationships, and the theory of consolidation and compressibility of soil masses. This course is intended primarily for engineering students.

1 class hour; 1 3-hour laboratory period. Credit, 2.
1:00-4:50 Tu. The DEPARTMENT.

81. (I) 82. (II) SPECIAL PROBLEMS IN AGRONOMY.—For seniors specializing in agronomy.

3 2-hour laboratory periods. Credit, 3.
Professor EISENMENGER.

Agrostology

53. (I) AGROSTOLOGY.—Designed to give a practical working knowledge of the construction and maintenance of fine turf areas. Grass seed and plant identification, ecology, and fundamental principles and cultural practices.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Associate Professor DICKINSON.

56. (II) AGROSTOLOGY.—Particularly designed for those desiring to become park, cemetery, or golf course superintendents. Diagnosis and treatment, equipment, and managerial problems will be thoroughly studied. One problem in the laboratory and scientific articles will be reviewed. A two-day tour visiting important turf areas will be a required part of the course.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Associate Professor DICKSON.
Prerequisite, Agrostology 53 or accepted practical experience.

ANIMAL HUSBANDRY

Professor RICE, Assistant Professor BLAISDELL, Associate Professor FOLEY, Assistant Professor COWAN, Assistant Professor HALE

1. (I) AGRICULTURE.—This course is designed to provide the student with a perspective of the whole field of agriculture both in the old and the new world. The social interrelationships of agriculture, population trends, standards of living, rural health, recreation, etc., are considered as well as the functions of farmers' organizations. Finally, the manifold influences of political trends, tariffs, systems of taxation and the functions of rural institutions, such as the church, the school, the library, on the development of cultural intellectual patterns in rural living are discussed.

2 class hours; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Tu. Th.; 3:00-4:50 W. Th. Professor RICE.

26. (II) BREEDS OF LIVESTOCK AND DAIRY CATTLE JUDGING.—This course considers the economic desirability of thirty breeds of domestic livestock. The origin, history, characteristics and distribution of the breeds of cattle, sheep, swine, and horses commercially important in the United States will be discussed. During April and May trips will be made on Saturdays to outstanding herds of dairy cattle in New England. The three highest ranking students in advanced judging will represent the College in the Intercollegiate Dairy Cattle Judging Contest at the Eastern States Exposition in Springfield, in September.

2 class hours; 1 4-hour laboratory period. Credit, 3.
11:00-11:50 M. W.; 8:00-12:00 S. Associate Professor FOLEY.

51. (I) NUTRITION OF FARM ANIMALS.—This course will present the fundamental principles of animal nutrition together with the identification, composition, properties and uses of the common feed stuffs. The application of these basic principles in calculating balanced rations for all classes of livestock will be stressed, followed by practical feeding problems assigned outside the classroom. Feeding practices in use with the College livestock will be analyzed and demonstrated.

2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu. Th.; 2:00-3:50 W. Assistant Professor COWAN.

53. (I) ELEMENTS OF MEAT PACKING.—The lectures will discuss the development of the modern packing industry, the history of meat inspection, the principles of meat preservation and the opportunities in this field. Laboratories include the classification of cattle, calves, sheep, and swine into proper market classes and grades and slaughtering and dressing operations with animals provided by the college farm. Wholesale and retail cuts are prepared and various by-products are manufactured and sold. A one-day trip through the packing houses of Boston is a requirement of this course.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Assistant Professor HALE.

56. (II) HORSE AND FAT STOCK PRODUCTION.—Studies in the historical and economic development, present status and probable future trends of general livestock production in the United States and especially New England. Consideration will be given to types of production, systems of management, methods of marketing, as well as practice in judging and selection and in fitting and showing. The five highest ranking students in judging will represent the College in the Intercollegiate Judging Contests at the Eastern States Exposition in Springfield and the International Livestock Exposition in Chicago the succeeding fall.

2 class hours; 1 2-hour and 1 4-hour laboratory period. Credit, 4.
11:00-11:50 Tu. Th.; 1:00-2:50 F., 8:00-12:00 S.
Assistant Professor COWAN.

73. (I) ADVANCED MEAT STUDIES AND JUDGING.—For seniors and graduate students specializing in animal husbandry and food technology.

This course deals with the basic techniques in preparing, preserving, utilizing meat products. The three highest ranking students in judging meat will represent the College in the Intercollegiate Meat Judging Contest at the International Livestock Show in Chicago in November.

2 2-hour laboratory periods. Credit, 2.
3:00-4:50 Tu. Th. Assistant Professor COWAN.

75. (I) ANIMAL BREEDING.—This course is planned to acquaint the student with the facts of reproductive physiology, with the facts and theories of modern genetics, and to show how such knowledge may be utilized through genetic analyses, selection, and systems of breeding for the creation of more beautiful and more efficient animal types.

2 2-hour and 1 4-hour laboratory periods. Credit, 4.
1:00-2:50 Tu. F.; 8:00-12:00 S. Professor RICE.

78. (II) DAIRY CATTLE PRODUCTION.—This is an intensive course covering all phases of dairy cattle and milk production. It affords an opportunity to seek the solution to the economic, nutritional, genetic, and managerial problems concerned in successful dairying.

4 2-hour laboratory periods. Credit, 4.
8:00-9:50 Tu. Th.; 1:00-2:50 W. F.
Associate Professor FOLEY and Assistant Professor BLAISDELL.

81. (I) ANIMAL HUSBANDRY SEMINAR.—

1 2-hour laboratory period. Credit, 1.
Hours by arrangement. Assistant Professor FOLEY.

82. (II) SEMINAR.—Students will prepare and deliver short talks on suitable animal husbandry or general agricultural topics at each class meeting. In addition, each student will prepare and deliver a paper in the Grinnell Prize Speaking Contest.

1 2-hour laboratory period. Credit, 1.
Hours by arrangement. Professor RICE.

91. (I) GENETICS AND EUGENICS.—This course, open to students other than those specializing in animal husbandry, deals with the general problems concerned in human reproduction and inheritance. The main topics studied will consist of the physiology of reproduction, the physical basis of inheritance, and the mode of transmission of human characteristics. Consideration will also be given to such questions as the causes of variation, the relative importance of genetic and environmental influences, the mechanism of sex determination as well as population trends, differential birth rates, sterilization, and kindred eugenic problems.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor RICE.

ART

See Landscape Architecture

BACTERIOLOGY AND PUBLIC HEALTH

Professor Bradley, Assistant Professor Garvey, Assistant Professor France, Assistant Professor Perriello, in cooperation with Dr. Walter W. Lee, State District Health Officer; Mr. Worthen H. Taylor and Mr. Ernest A. Snow of the Division of Sanitary Engineering of the Massachusetts Department of Public Health.

31. (1) Introductory Bacteriology. Lectures and Demonstrations.—Designed to present to students interested in general science, agriculture, horticulture, and home economics the fundamental concepts of bacteriological science; make microorganisims real and significant; and demonstrate their importance in the problems of agriculture, general science, industry, public health, and medicine. This course is designed to accompany Bacteriology 31A, but may be elected without it. When elected separately this course will not satisfy the sophomore science requirement and cannot be offered as a prerequisite for other advanced courses in bacteriology.

2 class hours. Credit, 2.

2:00-2:50 M. F. or Tu. Th. Professor Bradley.

31A. (I) Introductory Bacteriology. Laboratory.—The work covers the use and care of the compound microscope, the preparation of culture media, methods of sterilizing equipment, the isolation and asceptic handling of pure cultures, simple and differential staining, bacterial classification and differential studies on type species of pathogenic and nonpathogenic bacteria. Designed to accompany Bacteriology 31.

2 2-hour laboratory periods. Credit, 2.

3:00-4:50 M. F. or Tu. Th. Professor Bradley.

Prerequisite, Bacteriology 31, previously or concurrently.

51. (I) 52. (II). Advanced Bacteriology.—A continuation of introductory bacteriology. Studies on bacterial metabolism and the influence of environmental factors on growth and viability. The identification and differentiation of bacterial species by morphological, cultural, physiological, and serological studies. The combined courses give to the student not only a comprehensive picture of various forms of existing bacteria but develop a specialized technique for their cultivation, isolation, and identification.

2 3-hour laboratory periods. Credit. 3.

1:00-3:50 Tu.; 2:00-4:50 Th. Assistant Professor Garvey.

Prerequisites: For 51, Bacteriology 31A; for 52, Bacteriology 51.

81. (I) 82. (II) Applied Bacteriology.—These two courses covering a full year's work are designed to give the student a working knowledge of present-day applied bacteriology. The subjects receiving special consideration include studies on disinfectants and methods of determining phenol coefficients; sanitary examination of water supplies and of shellfish; study of bacteriological principles which apply to preservation, fermenta-

tion, spoilage, and methods of sanitary examination of foods; methods for examining the sanitary quality of milk and milk products; the groups of bacteria normally present in milk and the factors which influence their development, and a consideration of the role of milk in the transmission of disease.

2 3-hour laboratory periods. Credit, 3.
For 81, 1:00-3:50 W.; 9:00-11:50 S. For 82, 1:00-3:50 W. F.
Assistant Professors GARVEY and FRANCE.
Prerequisite, Bacteriology 31A. Bacteriology 52 is prerequisite for those specializing in bacteriology.

85. (I) BACTERIOLOGY (IMMUNOLOGY).—Admission by permission of the instructor. This course includes consideration of host reactions which favor the prevention and cure of disease; qualitative and quantitative estimations of toxins and antitoxins; the use of biological products such as antigens and immune sera in differential bacteriology and in disease diagnosis; and a consideration of isohemagglutinins as determinants of blood groups.

2 3-hour laboratory periods. Credit, 3.
1:00-3:50 M. F. Assistant Professor GARVEY.
Prerequisite, Bacteriology 52.

90. (II) SANITARY BACTERIOLOGY.—A detailed study of public health laboratory methods. Practical application of methods will be made through field studies.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement.
Assistant Professor FRANCE.
Prerequisite, Bacteriology 81.

Public Health

61. (I) 62. (II). GENERAL AND COMMUNITY SANITATION.—A study of the problems of general and community sanitation. Subjects discussed will include insect and rodent control, housing and slum clearance, ventilation, lighting, bathing places, sanitation of eating utensils, nuisances, camp sanitation, industrial hygiene, water supplies, sewerage and sewage, refuse and garbage, food and milk sanitation.

3 class hours. Credit, 3.
9:00-9:50 Tu. Th.; 12:00-12:50 F.
Professor BRADLEY and Mr. TAYLOR.

64. (II) MICROSCOPY OF WATER.—Admission by permission of the instructor. A study of plankton encountered in potable waters. Standard methods for their determination. Discussions on the distribution, significance, and numbers of species; the control of plankton populations.

1 class hour; 1 4-hour laboratory period. Credit, 3.
Hours by arrangement. Assistant Professor FRANCE and Mr. SNOW.
Prerequisite, Bacteriology 31A.

84. (II) Public Health Administration.—Admission by approval of the instructor. The organization, function, and administration of governmental health agencies; the relationship of official and volunteer health agencies; preparation and presentation of lectures, demonstrations, and exhibits. Public health laws, regulations, and sanitary codes, their origin and enforcement.

3 class hours. Credit, 3.
Hours by arrangement. Assistant Professor Perriello.

86 (II) Field Studies in Sanitation.—On six prearranged Saturdays during the semester, trips will be taken into the field for the observation of public health practices in sewerage; sewage treatment and disposal; the production and purification of public water supplies; housing and slum clearance; insect and rodent nuisances; milk production, handling, and distribution; garbage and refuse collection and disposal; slaughter houses and rendering plants; cold storage warehouses; and bakery and restaurant sanitation. A comparative study of urban and rural services will be made. Although transportation will be furnished, students are expected to finance their own meals.

1 4-hour laboratory period. Credit, 2.
Professor Bradley and Mr. Taylor.
Prerequisites, Public Health 61 and 62.

88. (II) Epidemiology and Communicable Disease Control.—Admission by approval of the instructors. Consideration of the factors involved in the spread of infections; a detailed discussion of the communicable diseases, their distribution, cause, epidemiology, and means of prevention and control. The use of vaccines, serums and drugs for prevention and treatment. Mass immunization programs.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Dr. Lee and Professor Bradley.

BIOLOGICAL FIELD STUDIES

See Zoology

BOTANY

Professor Osmun, Professor Torrey, Associate Professor Hodge,
Assistant Professor Banfield, Dr. Northcraft

1. (I) and (II) Introductory Botany.—The course sets forth a body of facts dealing with the morphology and physiology of plants which is not only a foundation for future professional work in biological science, but of intrinsic value to the educated layman. The topics of seed germination, ecological adaptations, floral structures, taxonomy, botanical history, cytology, wood-anatomy, plant physiology and plant reproduction

receive appropriate elementary treatment. The lectures attempt to interpret the facts of plant structure and function in the light of the major biological principles.
2 class hours; 2 2-hour laboratory periods. Credit, 3.
Professor TORREY and Associate Professor HODGE.

25. (I) CRYPTOGAMIC BOTANY.—Selected forms typifying the slime-molds, bacteria, algae, fungi, lichens, liverworts, mosses and fernworts. The course has a two-fold purpose: (1) it is intended for students who desire to extend their knowledge to the principal branches of the plant kingdom, thus rounding out a general course of which Course 1 constitutes the first part; (2) it is also planned as an introduction to certain advanced courses for which it is prerequisite.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor OSMUN.
Prerequisite, Botany 1.

26. (II) TAXONOMIC BOTANY.—Designed to acquaint the student with the local flora by a general study of the tracheate plants (lycopods, horsetails, ferns, gymnosperms, and angiosperms). Laboratory work will include the study of native trees and shrubs in the winter condition; the collection and identification of New England plants including the preparation of an herbarium of about 100 species. Competition for the Hills' Herbarium Prizes will be open to members of this course. Necessary materials for the course require the expenditure of approximately $8.
1 class hour; 2 2-hour laboratory periods. Credit 3.
Prerequisite, Botany 25. Associate Professor HODGE.

51. (I) and (II) PLANT PATHOLOGY.—A basic course in plant pathology emphasizing recognition of plant diseases and practical methods of control. Students in the plant sciences study representative diseases in their major field of interest. A more general selection of representative diseases is made for students specializing in entomology and other fields.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor BANFIELD.
Prerequisite, Botany 1; Botany 25 recommended.

58. (II) MICROTECHNIQUE.—A course in the preparation of microscopic mounts including the celloidin and paraffin methods and involving the use of microtomes and of differential stains.
2 2-hour laboratory periods. Credit, 2.
1:00-2:50 Tu. Th. Professor TORREY.
Prerequisite, Botany 25.

59. (I) 60. (II) THE ANGIOSPERMS (1946-47).—Alternate with Courses 61 and 62. An evolutionary treatment of the angiosperm orders

and families largely from the standpoint of floral and fruiting structures. Fundamental to intelligent determinative and taxonomic work on seed plants. Laboratory studies on types from the most important plant families. The department herbarium and greenhouses supply material of important tropical forms.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 W. Professor TORREY.
Prerequisite, Botany 1.

61. (I) 62. (II) THE COMPARATIVE ANATOMY OF GREEN PLANTS (1947-48).—Alternate with Courses 59 and 60. The lectures deal with the comparative anatomy of green plants from the evolutionary standpoint. Particular emphasis is laid upon the woody forms both living and extinct. Of the latter, the department possesses excellent sets of micropreparations and lantern slides.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 W. Professor TORREY.
Prerequisite, Botany 25.

63. (I) 64. (II) SYSTEMATIC MYCOLOGY.—Morphology and development of typical species representing the orders and families of fungi; practice in identification, collection, and preservation of fungi; systems of classification; collateral reading.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 W.; 3:00-4:50 M. F. Assistant Professor BANFIELD.
Prerequisite, Botany 25.

66. (II) INDUSTRIAL MYCOLOGY.—Identification of the common yeasts and molds used in the manufacture of industrial products. Study and laboratory exercises in the processes involved.

1 class hour; 2 2-hour laboratory periods. Credits, 3.
Prerequisite, Botany 1. Assistant Professor BANFIELD.

67. (I) 68. (II) INTRODUCTORY PLANT PHYSIOLOGY.—A study of the vital activities of living plants, including (a) chemical changes in the building up, transfer, and breaking down of plant substances; (b) changes involved in growth, development, and reproduction, with influencing factors; (c) changes in response to external stimuli. This is a basic course for all students planning for advanced work in botany, for students specializing in agriculture and horticulture, and for biologically minded students in other fields.

1 class hour, 2 2-hour laboratory periods. Credit 3.
Dr. NORTHCRAFT.
Prerequisites, Botany 25; Chemistry 25.

75. (I) PLANT PATHOLOGY.—A course in technical plant pathology; training in laboratory methods, isolation, culture work, inoculation; study

of fungicides; viruses, parasitism from a chemical and mathematical approach.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor BANFIELD.
Prerequisites, Botany 25 and 51; Botany 63 and 64 recommended.

76. (II) PLANT PATHOLOGY.—Problems in plant pathology and mycology; extensive literature review, experimental methods and design, statistics, operation of advanced laboratory equipment. This is not a course in research, but is designed primarily to give students a background necessary for industrial research and graduate study.

Hours by arrangement. Credit, 3.
Assistant Professor BANFIELD.
Prerequisite, Botany 75.

77. (I) 78. (II) PLANT PHYSIOLOGY.—Study of the factors and conditions of *(a)* plant nutrition, including the taking up of water and mineral substances, the assimilation of carbon and nitrogen, and the release of energy due to the processes of dissimilation; *(b)* plant growth, including the influence of internal and external factors on growth, the development of reproductive and vegetative organs; (*c*) plant movements, including those due to the taking up of water, and those of both motile and fixed forms in response to external stimuli. Weekly conferences are held, at which students report on assignments to original sources in the literature.

1 class hour; 2 2-hour laboratory periods. Credits, 3.
9:00-9:50 Tu.; 1:00-2:50 M. F. Dr. NORTHCRAFT.
Prerequisites, Botany 67, 68; Chemistry 51, 52.

81. (I) PLANT ECOLOGY.—Study of plants in relation to their environment, with special emphasis on the newer field studies, which have given increasing insight into the physical and chemical factors as they influence growth and development in the field and the adaptability of plants to changes in their normal environment. The various types of plant formations and successions are studied, as well as the mutual and antagonistic relations of certain plants.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Tu.; 1:00-2:50 W.; 8:00-9:50 S.
Associate Professor HODGE.
Prerequisite, Botany 1; Botany 25 recommended.

84. (II) THE FERNS (1947-48).—Intensive study of the morphology, life-history, and taxonomy of the fern plants, with especial attention to the fern flora of New England. Given in alternate years.

1 class hour; 1 2-hour laboratory period. Credit, 2.
1:00-1:50 Th.; 1:00-2:50 Tu. Professor OSMUN.
Prerequisite, Botany 25.

CHEMISTRY

Professor RITCHIE, Professor FESSENDEN, Professor FREEMAN, Associate Professor J. H. SMITH, Dr. PARROTT,* Assistant Professor ROBERTS

1. (I) 2. (II) GENERAL CHEMISTRY.—A study of the fundamental chemical laws and theories. A considerable amount of descriptive material will be included in connection with discussions of the periodic system, atomic structure, and in various applications of the principles. The object of the course is to give the student a sound scientific training through a course in chemistry. Students who have had no previous work in chemistry will be grouped together in laboratory and recitation sections so that they may have special attention.

2 class hours; 1 quiz hour; 1 3-hour laboratory period. Credit, 3
1:00-1:50 M. F. or Tu. Th.; 3:00-3:50 M. Tu. Th. or F.; 2:00-4:50 M. Tu. Th. or F. Professor FESSENDEN and Associate Professor SMITH.

29. (I) QUALITATIVE ANALYSIS.—A study of the fundamental principles and laws concerning the behavior of solutions of electrolytes. The laboratory work deals with the characteristic properties, reactions, and the systemic separation and identification of the common cations and anions. The semi-micro technique is used throughout for the analysis of salts, salt mixtures, and alloys. A considerable portion of the laboratory work is devoted to the identification of substances unknown to the student. This course is designed to meet the needs not only of those students specializing in chemistry, but also of those students specializing in other subjects where inorganic chemistry is of importance.

2 class hours; 6 laboratory hours. Credit, 4.
Associate Professor SMITH.
Prerequisite, Chemistry 2.

30. (II) QUANTITATIVE ANALYSIS.—The theory and practice of representative determinations, both gravimetric and volumetric. The laboratory work will include the gravimetric analysis of chloride, sulfate, and limestone, volumetric work with acids and bases, volumetric precipitation methods, and oxidation reduction titrations.

2 class hours; 2 3-hour laboratory periods. Credit, 4.
Assistant Professor ROBERTS.
Prerequisite, Chemistry 29.

31. (I) 32. (II) ORGANIC CHEMISTRY.—A short course intended to satisfy the requirements in this field for all students who do not specialize in chemistry.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 2:00-3:50 Th.
Professor RITCHIE and Dr. PARROTT.
Prerequisites, Chemistry 1 and 2.

51. (I) 52. (II) ORGANIC CHEMISTRY.—A course in the theory of organic chemistry intended to serve the needs of students who will specialize in chemistry, as well as those who may specialize in other fields where a

more comprehensive course is desired than Chemistry 31 and 32. The first semester deals largely with compounds of the aliphatic series, while the benezene series is taken up in the second semester. Students electing this course should take both 51 and 52.
3 class hours; 1 3-hour laboratory period. Credit, 4.
9:00-9:50 M. W. F.; 1:00-3:50 M. or W.
Professor RITCHIE and Dr. PARROTT.
Prerequisites, Chemistry 25 and 26.

63. (I) CHEMISTRY OF WATER, SEWAGE AND SEWAGE SLUDGE.—Admission by permission of the instructor. The preparation of reagents and standard methods for the analysis of water, sewage and sewage sludge. Lectures and discussions on the sanitary significance of analytical data.
2 3-hour laboratory periods. Credit, 3.
1:00-3:50 W. 9:00-11:50 S. Assistant Professor ROBERTS.
Prerequisite, Chemistry 30.

65. (I) 66. (II). PHYSICAL CHEMISTRY.—A study of the fundamental theories and laws of physical chemistry, together with laboratory work which includes the important methods of physicochemical measurements.
3 class hours; 1 3-hour laboratory period. Credit, 4
11:00-11:50 M. W. F.; 1:00-3:50 M. or W. Professor FESSENDEN.
Prerequisites, Chemistry 30; Mathematics 30; Physics 26.

77. (I) ADVANCED PHYSICAL CHEMISTRY.—A detailed study of a number of topics such as kinetics, catalysis, chemical thermodynamics and electrochemistry.
3 class hours. Credit, 3.
Professor FESSENDEN.
Prerequisites, Chemistry 65 and 66.

79. (I) PHYSIOLOGICAL CHEMISTRY.—Supplementary to Courses 51 and 52. For those who expect to take up scientific work in microbiology, botany, agronomy, animal husbandry, etc., and who have had Courses 51 and 52, it gives acquaintance with the chemistry of the physiological processes in plants and animals by means of which some of the important organic compounds studied in Courses 51 and 52 are built up in the living organism or are used as food by it. In the lectures, the study of food and nutrition as related to both human and domestic animals is the principal subject. In the laboratory, experimental studies are made of both animal and plant materials and processes.
3 class hours; 1 3-hour laboratory period. Credit, 4.
8:00-8:50 Tu. Th. S.; 9:00-11:50 Tu. Professor FREEMAN.
Prerequisite, Organic Chemistry.

80. (II) CLINICAL CHEMISTRY (Blood and Urine Analysis).—Work to be covered will include the collection and preparation of samples for analysis; standardization of glassware and the preparation of reagents; description of colorimeters and the determination of certain significant

compounds in the samples. The latter group will include at least sugars, proteins, non-protein, nitrogen, fatty substances and inorganic elements.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor RITCHIE.

82. (II) QUALITATIVE ORGANIC CHEMISTRY.—An introduction to the theory, procedure and technique usually employed in the identification and characterization of organic compounds. In general, the work will include the purification and separation of unknowns from crude or complex mixtures; their identification by means of class reactions, preparation of derivatives, and determination of physical properties.

2 3-hour laboratory periods. Credit, 3.
1:00-3:50 M. F. Professor FREEMAN.

83. (I) ADVANCED QUANTITATIVE ANALYSIS.—Designed primarily for chemistry majors, but open to others with permission of the instructor. The laboratory work will include representative determinations in electrolytic and electrometric methods; and an introduction to colorimetry and other optical methods of analysis. Selected topics in the use of organic precipitants, silicate analysis, analysis of steel and other alloys, fuels, oils, water, and gases will also be included.

2 class hours; 1-3 hour laboratory period. Credit, 3.
Assistant Professor ROBERTS.
Prerequisite, Chemistry 30.

86. (II) THEORETICAL CHEMISTRY.—Primarily for students specializing in chemistry; others may elect by permisison of the instructor. A knowledge of physical chemistry is desirable. The review of inorganic chemistry is largely theoretical and includes lectures on such topics as valence, Werner's coordination theory, crystal structure, and atomic structure.

3 class hours. Credit, 3.
Associate Professor SMITH.
Prerequisite, Chemistry 65.

88. (II) HISTORY OF CHEMISTRY.—An historical and biographical study of chemistry and chemists. The aim of the course is: (1) to give the student a comprehensive view of the science as a whole, through a study of the development of new ideas and the establishment of new theories and laws; and (2) to arouse an enthusiastic interest in the subject and an appreciation of the true spirit of scientific research, through a sympathetic presentation of the work and lives of the great chemists who have been the creators of the chemistry of today.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor RITCHIE.

92. (II) INTRODUCTION RESEARCH.—Admission only by permission of the department. The aim of the course is to give the student an opportunity to learn the purpose and methods of research. To each student

is assigned some special subject or problem in one of the following fields of chemistry, viz., analytical, biochemical, inorganic, organic, physical.
10 laboratory hours. Credit, 5.
Hours by arrangement. The DEPARTMENT.

94. (II) INDUSTRIAL CHEMISTRY.—The course aims to give the students some understanding of the uses and applications of reactions leading to the production of chemicals and chemical products by industry. Such topics as the production of the heavy chemicals, synthetic ntrogen products, commercial gases, metals, synthetic fibers, paper, etc. will be considered. New products and processes will be discussed. The equipment and the materials of industry will be included as an essential part of the discussion. Trips to near-by plants will be taken when possible.
3 class hours. Credit, 3.
Professor RITCHIE.
Prerequisites, Chemistry 51 and 30.

DAIRY INDUSTRY

Professor FRANSDEN, Assistant Professor LINDQUIST, Assistant Professor NELSON.

25. (I) GENERAL DAIRYING.—A general course, introductory to all other courses in dairy industry, for those who wish to take only one course in dairying to get a general knowledge of the subject. The work covers briefly: a study of milk, its secretion, composition, and various tests applied thereto; methods of pasteurizing and handling milk and cream; the use of separators;; elements of ice cream, butter, and cheese making.
2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 9:00-10:50 W. or 1:00-2:50 W.
Assistant Professors LINDQUIST and NELSON.

50. (II) JUDGING DAIRY PRODUCTS.—A study of market standards and grades of dairy products, with practice in judging milk, ice cream, butter, and cheese. The student learns to recognize quality in dairy products, to detect specific defects, and to know their causes and means of prevention. A team is chosen from this class to represent the College in dairy products judging contests at the Eastern States Exposition and the National Dairy Industries Exposition.
1 2-hour laboratory period. Credit, 1.
1:00-2-50 F. Assistant Professors LINDQUIST and NELSON.

52. (II) MARKET MILK.—A study of the various phases of the market milk industry; sanitary production, transportation, pasteurization and handling in the city plant; marketing, delivery systems, milk and its relation to public health, inspection, milk laws. food value, and advertising. Cultured milk and other milk drinks also are included. Some milk plants are visited, the cost of the trip not exceeding five dollars.
2 class hours; 2 2-hour laboratory periods. Credit, 4.
8:00-8:50 Tu. Th.; 3:00-4:50 M. F. Assistant Professor LINDQUIST.

75. (I) DAIRY CHEMISTRY.—The various physical and chemical properties of milk, milk products, and their components are studied. Testing and control methods commonly used commercially for milk and dairy products are included; moisture and fat determination, casein, salt, and acid tests, work with the Mojonnier apparatus, and other applied chemical tests are taken up in the laboratory.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-10:50 Tu.; 8:00-9:50 Th. Assistant Professor **NELSON**.

77. (I) BUTTER AND CHEESE MAKING.—The first half of the semester is devoted to butter making; the remainder to cheese making, condensed and powdered milk. The various phases of the butter industry studied are: separators and cream separation; pasteurization, neutralization, and ripening of cream; preparation of starter cultures; churning; marketing, and scoring of butter; creamery management. The work in cheese making includes Cheddar, cream Neufchatel, cottage, processed cheeses, etc. The manufacture of condensed and powdered milk, and commercial casein is also covered.

2 class hours; 2 3-hour laboratory periods. Credit, 4.
11:00-11:50 W. F.; 1:00-3:50 M. F.
Prerequisite, Dairy 25. Assistant Professors **LINDQUIST** and **NELSON**.

78. (II) ICE CREAM MAKING.—The course includes a study of the principles and practices of ice-cream making. The effects of such factors as composition, quality, pasteurization, homogenization, aging, and freezing on the finished product are considered. Sherbets, ices, fancy and individual forms, and all flavors of ice cream are studied. Some time is devoted to refrigeration machinery, delivery equipment, and merchandising methods as they are related to the industry.

2 class hours; 2 3-hour laboratory periods. Credit, 4.
11:00-11:50 W. F.; 1:00-3:50 Tu.; 2:00-4:50 Th.
Assistant Professor **NELSON**.

79. (I) 80. (II) SEMINAR.—For students specializing in dairy industry.

1 class hour. Credit, 1.
11:00-11:50 M. Professor **FRANDSEN**.

ECONOMICS

Professor GAMBLE, Assistant Professor SMART, Assistant Professor HALLER,
Assistant Professor FERWERDA, Mr. COLWELL, Mr. BELISLE

25. (I) and (II) ELEMENTS OF ECONOMICS.—Definitions and introductory principles of production, exchange, and the financial organization of society, with a short survey of the economics of distribution and the use of wealth and income.

3 class hours. Credit, 3.
The **DEPARTMENT**.

26. (II) ELEMENTS OF DISTRIBUTION.—A continuation of Course 25 with emphasis on the study of wealth and income distribution.
3 class hours. Credit, 3.
Assistant Professor HALLER.
Prerequisite, Economics 25.

49. (I) ECONOMIC GEOGRAPHY.—A study of the geographic distribution of natural and human resources and the economic and physiographic bases of agriculture, manufacturing, and allied industries.
9:00-9:50 M. W. F. Professor GAMBLE.
3 class hours. Credit, 3.

50. (II) ECONOMIC HISTORY OF THE UNITED STATES.—A study of the significant factors in the economic development of the nation.
3 class hours. Credit, 3.
Assistant Professor HALLER.

51. (I) ECONOMICS OF BUSINESS AND INDUSTRY.—The application of economics to business. Presentation of the industrial relationships and the principles upon which the production of economic goods is based. Problems arising from the development of mass production, competitive enterprises, diversification of industry and social control; working relations. Some study will be made of the corporation, its effectiveness, and its social influences.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Mr. COLWELL.

52. (II) MONEY, BANKING, AND CREDIT.—A critical survey of the development and operation of the monetary and banking systems of the United States.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Professor GAMBLE.

53. (I) MARKETING AND MARKETING PROBLEMS.—Not open to students who have taken or are taking Agricultural Economics 55. A study of the forces and conditions which determine prices and the mechanism, methods, and problems concerned with transporting, storing and distributing economic goods. The characteristics and possibilities of the New England market are given special attention.
3 class hours. Credit, 3.
10:00-10:50 Tu. S. 11:00-11:50 Th. Assistant Professor HALLER.

54. (II) CORPORATION FINANCE (1946-47).—Alternates with Course 78. Types of business organization and their essential features; the nature and growth of the corporation and its economic and social significance; types of securities used for raising capital; promotion; financial structure of various types of concerns; administration of income; control; holding company finance; corporate failure and reorganization are considered.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Mr. COLWELL.

55. (I) ECONOMICS OF CONSUMPTION.—The purpose of this course is a consideration of the importance of consumption in modern industry and commerce. It includes a study of the laws of consumption, standards of living, sources of and factors determining family incomes, and of the administration of these incomes as shown by the expenditures of the nation and of various groups. The relation of consumption to the problems of population and to the development of society is also studied.

3 class hours. Credit, 3.

9:00-9:50 M. W. F. Assistant Professor HALLER.

58. (II) BUSINESS LAW.—This course consists of a study of the drawing, reading, and interpretation of contracts and sales, with specific problem work. In addition, wills, commercial paper, carriers, real estate agency, public and personal rights are studied.

3 class hours. Credit, 3.

9:00-9:50 M. W. F. Assistant Professor SMART.

70. (II) MONOPOLIES (1946-47).—A study of the growth, development, and social control of monopolies. Given in alternate years.

3 class hours. Credit, 3.

Assistant Professor HALLER.

75. (I) CURRENT ECONOMIC PROBLEMS.—An advanced course for those desirous of studying more intensively some current economic problems. Studies in economic philosophy and the economic aspects and consequences of progress in the physical and biological sciences and current economic questions are some of the problems discussed. Students will be encouraged to pursue lines of individual interest.

3 class hours. Credit, 3.

10:00-10:50 M. W. F. Assistant Professor HALLER.

76. (II) PRINCIPLES OF TRANSPORTATION.—The development of highway, waterway, and railway transportation, and its relation to the agricultural and industrial development of the country; the principles governing the operation and control of transportation agencies; present-day problems relating to the shipment of farm and industrial products, rates, facilities, and services; methods of reducing wastes in transportation; the economics of the good roads movement and of motor transportation.

3 class hours. Credit, 3.

9:00-9:50 M. W. F. Assistant Professor HALLER.

77. (I) ECONOMICS OF INTERNATIONAL TRADE (1947-48).—A study of the policies, principles, and practices of international trade. Given in alternate years.

3 class hours. Credit, 3.

9:00-9:50 Tu. Th. S. Assistant Professor HALLER.

78. (II) PUBLIC FINANCE (1947-48)—Alternates with Course 54. Principles of public revenues and expenditures with special emphasis on the systems and problems of taxation.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor GAMBLE.

79. (I) LABOR PROBLEMS. An analysis of the background and character of the modern labor problem with special references to the United States. Topics to be considered include: the problems of wages, hours, working conditions and unemployment; the trade union movement; and some agencies for the promotion of industrial peace.

3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Professor GAMBLE.

80. (II) ECONOMIC THEORY AND SOCIAL PROGRESS (1947-48).—This course logically follows Economics 75 and is designed to point out the principles and philosophies underlying current economic thought and social practices. Given in alternate years.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor GAMBLE.

81. (I) PRINCIPLES OF BUSINESS ACCOUNTING.—This course aims to give the student a working knowledge of the principles underlying the accounting system in the gathering, analysis, and interpretation of accounting data, and the methods used in accounting and preparing the usual types of business statements for individual proprietorship businesses and partnerships. The managerial uses of accounting as a means of business control are the keynote of the course.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
2:00-2:50 W.; 3.00-4.50 M. F.
Mr. COLWELL and Assistant Professor SMART.

82. (II) PRINCIPLES OF BUSINESS ACCOUNTING.—This course covers the problems of partnership and corporation accounting. Considerable time is spent on problems in amortization, depreciation, and the preparation, analysis and interpretation of financial statements.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
2:00-2:50 W.; 2:00-3:50 M. F.
Mr. COLWELL and Assistant Professor SMART.
Prerequisite, Economics 81.

83. (I) BUSINESS MANAGEMENT.—A study of the problems connected with the management of a business enterprise.

3 class hours. Credit, 3.
Professor GAMBLE.

85. (I) LEGAL ASPECTS OF ECONOMIC TRANSACTIONS.—A continuation of Course 58.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor SMART.
Prerequisite, Economics 58.

91. (I) 92. (II) SEMINAR.—Research in economic theory; problems of labor, commerce, and industry. If desirable, some other economic study may be substituted.
1 or 2 2-hour conference periods. Credit, 1 to 3.
The DEPARTMENT.

95. (I) 96. (II) BUSINESS PRACTICES AND COST ACCOUNTING.—For a limited number of qualified seniors and graduate students. The application of accounting techniques to industrial costs. The second semester deals with the application of accounting principles to representative types of business and the study of Federal Income Tax and Social Security Accounting problems.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Mr. COLWELL.

Political Science

28. (II) STATE AND LOCAL GOVERNMENT.—A survey of the governmental structure and functions of the American state and its local governments. Completion of this course and of the course American Government given by the history department is recommended for those taking further courses in government history department.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Assistant Professor FERWERDA.

61. (I) 62. (II) PUBLIC ADMINISTRATION.—In the first semester a general survey of the field is undertaken, treating such subjects as personnel administration, financial organization, public relations, and the administration of public protection, public health, welfare, education, and public works. The second semester will deal with administrative law, including an examination of the scope and limits of administrative powers, enforcement of administrative decisions, and remedies against administrative action.
3 class hours. Credit, 3.
2:00-2:50 Tu. Th., 11:00-11:50 S. Assistant Professor FERWERDA.
Prerequisite, History 25 or Economics 28 or Economics 63.

63. (I) POLITICAL SCIENCE (1948-49).—A study of the nature and methods of political science; the origin, evolution and theory of the State; the functions of the State and its relations with other States. Given in alternative years.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Assistant Professor FERWERDA.

64. (II) MUNICIPAL GOVERNMENT AND ADMINISTRATION (1946-47).—A survey of the governmental structure and functions of American municipalities. Special attention is given to administrative problems arising from such functions as: police, education, charities, correction, city planning and zoning. Given in alternate years.
3 class hours. Credit, 3.
10:00-10:50 Tu. S., 11:00-11:50 Th. Assistant Professor FERWERDA.

65. (I) CONSTITUTIONAL LAW (1947-48).—A study of the fundamental rights and guarantees under the American Constitution as interpreted by decisions of the Supreme Court. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Assistant Professor FERWERDA.

93. (I) 94. (II) SEMINAR IN POLITICAL SCIENCE.—A study of special problems in the field of political science.
1 or 2 2-hour periods. Credit. 3.
Assistant Professor FERWERDA.

EDUCATION

Professor PURVIS, Assistant Professor OLIVER, Mr. TAFT[1], Mr. CARPENTER

51. (I) PRINCIPLES AND METHODS OF TEACHING.—By means of discussion, case studies, and current educational literature, teaching ideals and procedures are set up. Application of the general principles are made in the major fields represented by the class.
3 class hours. Credit, 3.
11:00-11:50 M. W. F.
Professor PURVIS and Assistant Professor OLIVER.

52. (II) METHODS OF EXTENSION TEACHING.—For juniors and seniors specializing in the divisions of agriculture, horticulture, and home economics. The course considers duties and objectives of extension workers; development of extension programs to meet community and regional problems from a national, state, and local point of view; the evaluation of results; use and development of leaders; and methods used in extension work.
2 class hours; 12-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; laboratory hours by arrangement.
Mr. CARPENTER and EXTENSION STAFF.

53. (I) EDUCATIONAL TESTS AND MEASUREMENTS.—The most serviceable tests and scales for measuring achievement are considered; test construction, administration, scoring, and interpretation of results are studied and practiced. Considerable attention is given to preparation of informal tests for diagnostic and grading purposes.
2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 Th. Professor PURVIS

72. (II) VOCATIONAL EDUCATION IN AGRICULTURE.—The course demands certain prerequisites of experience and a definite objective on the part of the student to enter the field of vocational agricultural teaching which makes it necessary for the student to seek permission to enter the course. It is the first of the series of special courses (72, 73, 75) required of candidates for the vocational agricultural teacher-training certificate. A survey of vocational education and an introduction to teaching of vocational agriculture at the secondary school level is the

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[1] State Supervisor for Agricultural Teacher-Training representing the State Department of Education in the administration of vocational agriculture acts.

basis of the course. Certain information and observations in preparation for the apprenticeship course are offered.
3 class hours. Credit, 3.
10:00-10:50 M. W. F.
Assistant Professor OLIVER and VOCATIONAL DIVISION
of STATE DEPARTMENT OF EDUCATION.

73. (I) and (II) APPRENTICE TEACHING IN AGRICULTURE.—For a limited number of qualified candidates in vocational education. A full year in absentia normally following the junior year in college, teaching agriculture, horticulture, and related subjects. Candidates should have completed the course in Education 72, and in Education 51 if possible, and must apply early to the instructor of the course.
Maximum credit, 6.
Assistant Professor OLIVER and VOCATIONAL DIVISION
of STATE DEPARTMENT OF EDUCATION.

75. (I) TECHNIQUE OF TEACHING VOCATIONAL AGRICULTURE.—By arrangement with the instructor. Preferably this course should follow Courses 72 and 73. It covers the materials, methods, policies, and special requirements of Massachusetts for teaching agriculture and related subjects in high schools and special country schools. This is one of three courses required of candidates for the agricultural teacher-training certificates.
3 class hours. Credit, 3.
9:00-9:50 M. W. F.
Assistant Professor OLIVER and VOCATIONAL DIVISION
of STATE DEPARTMENT OF EDUCATION.

80. (II) HISTORY OF EDUCATION.—This course opens a long vista in the development of one very important human endeavor—the passing on to succeeding generations of the accumulated social heritage of the race. Social, cultural, and educational movements are traced from early Greece to the present with the aim of better understanding of modern education.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor PURVIS

81. (I) COMPARATIVE EDUCATION.—A course of general cultural and citizenship value in which educational history, philosophy, system, administration, and finance of at least six foreign countries will be compared step by step with the same items in the United States.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor ——.

83. (I) THE PRINCIPLES OF SECONDARY EDUCATION.—This course presents a picture of the secondary school as a social agency, its relation to elementary and collegiate education, its aims, organizations, administration, curriculum procedures, and such other phases as are necessary to acquaint the layman with this predominant level of our educational ladder.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor PURVIS.

85. (I) and (II) OBSERVATION and PRACTICE TEACHING.—An opportunity to do regular teaching in cooperating high schools within commuting distance of the College. The student works under the supervision of a teacher with frequent visits from some member of the staff.
Credit, 3.
Hours by arrangement THE DEPARTMENT.

88. (II) THE SCHOOL CURRICULUM (1946-47).—This course discusses the curriculum of schools of this country from the point of view of the general social philosophy which created it. It seeks to make clear to the layman the various controversial issues regarding such concepts as progressive education, the core-curriculum, the experience curriculum, projects, etc., and to present a common-sense method of analysis of such controversies and of evaluation in the light of their stated philosophy. Given in alternate years.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor PURVIS.

90. (I) EVALUATION OF LEARNING.—Only for seniors taking the One-Semester Plan. Tests and scales for measuring ability and achievement; standard tests and interpretation of results; construction of informal tests for diagnostic and grading purposes.
3 2-hour periods the first and each alternate week. Credit, 3.
Professor PURVIS.

91. (I) SECONDARY SCHOOL CURRICULUM.—Only for seniors taking the One-Semester Plan. A consideration of learning material and its organization in the subjects which these students are teaching and the preparation of detailed courses of study in those fields in the light of accepted educational practice. Attention will be given to the best measures for evaluating the outcome of instruction in those fields.
3 2-hour periods the first and each alternate week Credit, 3.
Professor PURVIS.

92. (I) METHODS AND MANAGEMENT.—Only for seniors taking the One-Semester Plan. The basic principles underlying all teaching and the procedure in the most approved methods will be discussed and illustrated. The aim of the course is to provide the trainee with a solid pedagogical basis for his own experimental efforts at teaching so that he may note the things that are important for effective class handling and instruction.
3 2-hour periods the first and each alternate week. Credit, 3.
Professor PURVIS and Assistant Professor OLIVER.

93. (I) THE SECONDARY SCHOOL.—Only for seniors taking the One-Semester Plan. Practical problems concerning the school as a social agency, its aims, characteristics of pupil population, program of study, guidance, extra curriculum, social pressure, etc., from the point of view of situations met by teachers.
3 2-hour periods the first and each alternate week. Credit, 3.
Professor PURVIS.

94. (I) PRACTICE TEACHING.—Only for seniors taking the One-Semester Plan. Five school days of teaching each alternate week in neighboring secondary schools under supervision of competent teachers and members of the staff.
The second and each alternate week. Credit, 5.
THE DEPARTMENT.

AGRICULTURAL ENGINEERING

Professor GUNNESS, Associate Professor MARKUSON, Assistant Professor TAGUE, Mr. PUSHEE, Mr. NEWLON

54. (II) MECHANICAL FARM EQUIPMENT.—A study of farm machinery, the gasoline engine as applied to stationary power plants, automobiles, trucks and tractors; field and other farm machines; and the use of electricity on the farm. Practice in repair of equipment including welding and general shop practice.
1 class hour; 2 2-hour laboratory periods. Credits, 3.
Assistant Professor TAGUE and Mr. NEWLON.

60. (II) HOUSEHOLD EQUIPMENT AND TECHNIQUES.—Selection, care and operation of household equipment and the mechanical principles involved. Practical demonstrations in home wiring, home lighting, home refrigeration, ranges, and small electrical appliances will be given. Hereafter to be offered as Home Economics 60.
2 class hours; 1 2-hour laboratory period. Credit 3.
Assistant Professors TAGUE and LANGFORD.

72. (II) DRAINAGE AND IRRIGATION ENGINEERING.—The course covers the engineering phase of drainage and irrigation. The various systems are studied and practice is given in the design of drainage and irrigation systems. Field work gives practice in surveying for drains, platting, locating drains, erecting batter-boards, and laying tile. Practice is given assembling equipment for spray irrigation, and the flow of water through nozzles is studied by means of laboratory tests.
1 class hour; 1 2-hour laboratory period. Credit, 2.
Associate Professor MARKUSON.

74. (II) FARM STRUCTURES.—A study of the strength and durability of concrete, wood, stone, and clay products, and of the mechanical principles underlying their use in farm construction. The design of various farm buildings, such as the general purpose barn, dairy stable, hog house, sheep barn, milk house, fruit storage, etc., is studied. In the drafting room, details of construction will be worked out, a study of the mechanics of simple roof trusses will be made, and a complete design of some major farm building will be finished in all essential details. Blue prints of the finished design will be made.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 Tu.; 1:00-2:50 M. F. Associate Professor MARKUSON.

80. (II) Dairy Mechanics (1946-47).—A study of dairy machinery, including steam boilers, engines, pumps, traps, refrigeration machinery, and heat-controlling devices. Practice is given in pipe fitting, packing valves, lacing belts, and similar repair jobs on the equipment used in dairy plants. Given in alternate years.

1 class hour; 1 2-hour laboratory period. Credit, 2.
Assistant Professor Tague and Mr. Newlon.

83. (I) 84. (II) Agricultural Engineering Problems.—Open only to seniors specializing in agricultural engineering. This course consists of individual problems chosen by the students under guidance of the department. The work is of an advanced nature, supplementing that of the regular agricultural engineering curriculum. Copy of project outline, indicating the number of credits, must be filed with the department and with the Dean at the opening of the semester.

Hours by arrangement. Credit, 3.
The Department.

85. (I) Rural Electrification.—This course is planned primarily for students who are interested in the application of electricity to agriculture. It includes a study of the generation and distribution of electricity for light and power. Special emphasis is placed on the utilization of electricity on the farm and in rural communities.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. The Department.

LIGHT BUILDING CONSTRUCTION

1. (I) Architectural Drawing.—An elementary course in architectural drawing involving use of instruments through exercises pertaining to the building construction field. Two dimensional views of plan, section, and elevation of construction systems, and the elements of architecture will form the principal items of study.

3 2-hour laboratory periods. Credit, 3.
1:00-2:50 Tu. Th., 2:00-3:50 W. Associate Professor Markuson.

2. (II) Architectural Drawing.—A continuation of Architecture 1, employing descriptive geometry problems of points, lines, planes, and solids; simple shades and shadows; and perspective drawing as related to building construction.

1 class hour; 2 2-hour laboratory periods. Credit 3.
1:00-2:50 Tu. Thu.; 2:00-2:50 W. Associate Professor Markuson.

21. (I) 22. (II) Construction.—A course which introduces the theory and precision applications of wood and metal working through use and care of hand and power tools.

3 2-hour laboratory periods. Credit, 3.
Messrs. Pushee and Newlon.

51. (I) HOUSE PLANNING.—Plan designs of the small house will be made. The arrangement of interior equipment, especially in the kitchen, and lighting, heating, water supply, and sewage disposal will be studied, together with a brief history of the house materials, construction methods, equipment, and architectural styles. Consideration will be given to the economics of house building, including financing and to maintenance and overhead expense.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Th.; 1:00-2:50 W.; 8:00-9:50 S.
Associate Professor MARKUSON.

CIVIL ENGINEERING

Professor MARSTON, Assistant Professor SWENSON, Assistant Professor BATES, Mr. SACHSE.

25. (I) PLANE SURVEYING.—This course considers the elements of plane surveying including the adjustments and use of the engineer's transit and level.

1 class hour; 2 3-hour laboratory periods. Credit, 3.
Professor MARSTON, Assistant Professor OSGOOD.
Prerequisite, Mathematics 2, 3, or 5.

26. (II) ROUTE SURVEYING.—This course considers the calculations and field work required in the location, construction, and maintenance of routes of transportations and communication such as highways, railroads, canals, pipe lines, and transmission lines.

2 class hours; 1 3-hour laboratory period. Credit, 3.
Prerequisite, Civil Engineering 25. Professor MARSTON.

28. (Summer) PROPERTY AND TOPOGRAPHIC SURVEYING.—This is a three-week practice course offered primarily for Civil Engineers. It consists of a transit and tape property survey and a plane table togopraphic survey of two areas containing about twenty acres. Simple field determinations of latitude and meridian are part of the program. Certain topics in advanced surveying and the elements of photogrammetry will be discussed in this course.

3 44-hour weeks following Commencement. Credit, 3.
Prerequisite, Civil Engineering 25. Professor MARSTON.

30. (Summer) RAILROAD AND HIGHWAY SURVEYING.—This is a three-week practice course offered primarily for Civil Engineers. It consists of a short route survey for which preliminary maps and estimates, a location survey, and estimates of earthwork and cost are prepared.

3 44-hour weeks preceding opening of College in September Credit, 3.
Professor MARSTON.
Prerequisite, Civil Engineering 26.

34. (II) APPLIED MECHANICS (STATICS).—The following topics are considered in the study of statics; colinear, concurrent, non-concurrent and parallel force systems in a plane and in space; static friction problems; first and second moments. The free-body method of analysis is emphasized. Algebraic and graphical solutions are determined.
3 class hours. Credit, 3.
Professor MARSTON, Assistant Professor SWENSON.
Prerequisites, Physics 26; Mathematics 31.

51. (I) STRENGTH OF MATERIALS.—The following topics are considered: elementary stresses and strains; combined stresses; riveted joints; torsion; shear and bending moments; stresses and deflections in beams; statically indeterminate beams; columns.
3 class hours; 1 2-hour laboratory period. Credit, 4.
Professor MARSTON, Assistant Professor SWENSON.
Prerequisites, Civil Engineering 34; Mathematics 32.

52. (II) APPLIED MECHANICS (Kinetics).—This is a continuation of Civil Engineering 34 into the field of kinetics. It is concerned with the engineering applications of the fundamental principles of mechanics.
3 class hours. Credit, 3.
Assistant Professor BATES.
Prerequisites, Civil Engineering 34; Mathematics 32.

55. (II) HIGHWAY ENGINEERING.—This course considers the various types of roads and pavements, methods of construction and maintenance, road materials, special machinery, costs and economic comparisons. Highway construction projects in the vicinity will be inspected.
3 class hours. Credit, 3.
Professor MARSTON.
Prerequisites, Civil Engineering 26 and 30.

56. (II) TRANSPORTATION ENGINEERING.—A study of the basic principles of highway, railroad, water and air transportation. Operational requirements, economics of location, administration and finance, design considerations, and maintenance.
3 class hours. Credit, 3.
Professor MARSTON.
Prerequisite, Civil Engineering 55.

70. (II) THEORY OF STRUCTURES.—The algebraic and graphical methods of analysis of the elements of structures; steel beams and girders, tension and compression members, roof trusses, connections; modern timber trusses, beams, columns and connectors. The design of plate girders and the simpler types of bridge trusses and floor systems.
3 class hours; 1 3-hour laboratory period. Credit, 4.
Assistant Professor OSGOOD.
Prerequisite, Civil Engineering 51.

71. (I) STRUCTURAL DESIGN.—The analysis and design of a plate girder, steel truss bridge, and timber building bent consisting of roof truss, columns and bracing. Working drawings will be prepared of each design.
1 class hour; 2 3-hour laboratory periods. Credit, 3.
Assistant Professor OSGOOD.
Prerequisite, Civil Engineering 70.

72. (II) ADVANCED STRUCTURES.—The analysis and design of continuous beams and trusses, rigid frames, arches, and office buildings. Statically indeterminate methods of finding stresses and deflections are used.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Assistant Professor OSGOOD.
Prerequisite, Civil Engineering 71.

73. (I) CONCRETE AND MASONRY.—The general properties of plain and reinforced concrete. Design of beams, slabs, columns, walls and foundations for buildings; retaining walls, arches and bridges. The preparation of design and working drawings for a reinforced concrete building. A study of the elements of masonry construction and the use of bricks, concrete units and bearing tile in building construction.
2 class hours; 2 3-hour laboratory periods. Credit, 4.
Assistant Professor OSGOOD.
Prerequisite, Civil Engineering 51.

75. (I) HYDRAULICS.—Hydrostatics, which deals with pressure gages, pressures on surfaces and immersed and floating bodies, is first considered. Hydrokinetics, which includes flow through orifices and tubes, over weirs and dams, through pipes and open channels, is dealt with next. Hydrodynamics, which considers turbines and pumps, may be taken up briefly. Where possible, current practical problems in hydraulics, such as flood control, hydroelectric power development, and erosion control are discussed during the class period.
2 class hours; 1 3-hour laboratory period. Credit, 3.
9:00-9:50 M. W. F. Professor MARSTON.
Prerequisites, Physics 26; Mathematics 32.

77. (I) WATER SUPPLY.—This course considers the engineering aspects of public water supply systems and includes the following topics: quantity of water required; hydrology; collection systems; distribution systems; pumping machinery; purification work.
3 class hours. Credit, 3.
Professor MARSTON.
Prerequisite, Civil Engineering 75 concurrently.

78. (II) SANITARY ENGINEERING (SEWERAGE).—This course considers the engineering aspects of the design, construction, and maintenance of sewerage systems and includes the following topics: hydraulics of sewers, sanitary and storm sewers, sewage treatment, plant design

and operation. Engineers of the Massachusetts Department of Public Health will assist with this course.
3 class hours. Credit, 3.
Professor MARSTON.

Prerequisite, Civil Engineering 77.

80. (I) SOIL MECHANICS.—A study is made of the physical and mechanical principles underlying soil mechanics. The course will include the study of the origin and basic classification of soils; the physics and mechanics of soil moisture relationships, such as plasticity constants, seepage, frost action, capillarity permeability. This is followed by a study of the mechanics of earth masses, dealing with stress and strain relationships, and the theory of consolidation and compressibility of soil masses. This course is intended primarily for engineering students.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Mr. ———.

Prerequisite, Civil Engineering 31.

90. (II) CONTRACTS AND SPECIFICATIONS.—A course embodying the essentials of contracts as applied to business procedures in the construction field. The relationship between contractor, owner, and engineer and their respective rights and duties. The work in specifications will consist of discussion material together with the practice of writing specifications for assigned problems.
2 class hours. Credit, 2.
Associate Professor MARKUSON.

General Engineering

1. (I) ENGINEERING DRAWING.—A study of drafting as applied to engineering practice, orthographic projections, lettering, interpreting of working drawings, sectional views, auxiliary views, dimensioning, fastenings, pictorial representation of machine parts, tracings, and engineering problems.
2 4-hour laboratory periods. Credit, 3.
Assistant Professor SWENSON, MR. SACHSE.

2. (II) DESCRIPTIVE GEOMETRY.—A study of the graphical theory applicable to engineering problems: principles of orthographic projections, problems relating to lines and planes, graphical computations, polyhedrons, curved surfaces, warped surfaces, intersection problems, analytical solutions, practical applications.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Assistant Professor SWENSON, MR. SACHSE.
Prerequisite, Engineering 1.

21. (I) SHOP.—For general and industrial engineers. In the first part of the course woodworking and pattern making experience is gained on machines and with hand tools at the bench. The course next proceeds to the forging and heat treating of metals and then to the various methods of welding.
2 4-hour laboratory periods. Credit, 3.
Messrs. PUSHEE and NEWLON.

22. (II) MACHINE SHOP.—For general and industrial engineers. Proficiency in metal working is obtained by lathe, drill press, planer, milling, grinding, screw machine and allied work, including hand tools at the bench. Some of the time is devoted to classroom work in the theory of machine tool operation, fits and tolerances, and manufacturing organization and procedures.
2 4-hour laboratory periods. Credit, 3.
Messrs. PUSHEE and NEWLON.

23. (I) SHOP.—For engineers other than general and industrial. Approximately half the semester is spent in woodworking, pattern making, forging and welding; in the other half the student gains experience in the machine shop, where he becomes familiar with the various machine and hand tools used in metal working.
2 4-hour laboratory periods. Credits, 3.
Messrs. PUSHEE and NEWLON.

61. (I) PROPERTIES AND TESTING OF ENGINEERING MATERIALS.—A study of how the composition, structure, and treatment of materials influence their properties. Tests and observations are made to substantiate the theory. Metals are emphasized, but tests are also performed on such materials as wood, concrete, plastics, sand, and oil. Field trips will be made to nearby establishments in so far as possible.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor BATES.
Prerequisite, Physics 26.

62. (II) MATERIALS OF CONSTRUCTION.—The course encompasses the manufacture, processing, and efficient utilization of the many and diversified products entering into construction today.
2 class hours. Credit, 2.
Assistant Professor BATES.

63. (I) HEAT POWER I (Engineering Thermodynamics).—Thermodynamic processes of gases and vapors, cycles of heat engines, entropy, steam and ammonia tables, Mollier diagram, flow of fluids, application to compressed air, refrigerating machinery and air conditioning.
3 class hours. Credit, 3.
Assistant Professors SWENSON and BATES.
Prerequisites, Physics 26; Mathematics 32.

64. (II) HEAT POWER II (STEAM POWER PLANTS).—A study of the steam power plant, including boilers, stokers, fuels, combustion, steam generation, steam engines and turbines, and auxiliary equipment.
3 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professors SWENSON and BATES.
Prerequisite, Engineering 63.

66. (II) HEAT POWER III (Internal Combustion Engines)—A study of spark-ignition and compression-ignition engines including fuels, car-

buretion, combustion, lubrication, ignition, cooling, and engine performance. The gas turbine will be studied briefly.

3 class hours. Credit, 3.
Assistant Professors SWENSON and BATES.
Prerequisite, Engineering 63.

67. (I) ENGINEERING LABORATORY.—The study and calibration of instruments and tests of fuels and lubricants, performance tests of steam engines and turbines, gasoline and Diesel engines, fans, hydraulic apparatus, refrigeration systems and other typical engineering equipment. Emphasis on laboratory procedure and orderly presentation of results.

1 class hour; 1 3-hour laboratory period. Credit, 2.
Assistant Professors SWENSON and BATES.
Prerequisites, Civil Engineering 75; Engineering 63.

69. (I) KINEMATICS.—Principles of mechanism, including velocity and acceleration diagrams, gears, gear teeth and gear trains, flexible connectors, variable speed transmissions, inertia in machines and balancing of rotating parts.

2 class hours; 1 3-hour laboratory period. Credit, 3.
Assistant Professors SWENSON and BATES.
Prerequisites, Engineering 1; Physics 25.

83. (II). MACHINE DESIGN.—Principles involved in the design of various machine parts including fastenings, shafts, belts, bearings, gears, and pressure vessels.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor SWENSON.
Prerequisites, Civil Engineering 51 and 52.

86. (II) ELEMENTS OF ELECTRICAL ENGINEERING.—The electric current and its effect, direct and alternating current circuits, electrical measurements, magnets and their application, inductance and capacitance. After the fundamentals of electricity are thoroughly grasped, the course proceeds to the study of direct and alternating current machinery.

3 class hours; 1 3-hour laboratory period. Credit, 4.
Assistant Professor BATES and Mr. SACHSE.
Prerequisites, Physics 26; Mathematics 32.

88. (II) TIME AND MOTION STUDY.—Time and motion study of a number of jobs performed in industry with the objective of simplifying work, cutting costs, and computing standard times. Charts and curves will be used, supplemented by motion pictures of jobs in factories.

2 class hours; 1 3-hour laboratory period. Credit, 3.
Prerequisite, Engineering 22.

92. (II) SEMINAR.—For seniors majoring in engineering.

Credit, 1.
The DEPARTMENT.

ENGLISH

Professor RAND, Professor PRINCE, Professor MUSGRAVE, Associate Professor GOLDBERG, Assistant Professor TROY, Assistant Professor HELMING, Assistant Professor DUBOIS, Miss HORRIGAN, Mr. VARLEY, Mr. HANNUM*, Dr. O'DONNELL, Mr. LANE, Mrs. WRIGHT.

1. (I) 2. (II) ENGLISH COMPOSITION.—Intended to teach straight thinking, sound structure, clear and correct expression.
3 class hours. Credit, 3.
The DEPARTMENT.

25. (I) 26. (II).—A SURVEY OF ENGLISH LITERATURE.—A general reading course, from the beginning of English literature to the end of the Nineteenth Century.
2 class hours. Credit, 2.
The DEPARTMENT.

50. (II) CHAUCER (1947-48).—Reading of the principal works of Chaucer; a study of Chaucer's development as a creative artist; an attempt to appreciate his humanism. Given in alternate years.
3 class hours. Credit, 3.
12:00-12:50 M. W. F. Professor PRINCE.

51. (I) THE RENAISSANCE IN ENGLAND.—A study of various aspects of the Renaissance as revealed in such writers as Spenser, Bacon, Sir Thomas Browne, Burton, and Hobbes. Special emphasis is given to Spenser's *Faerie Queene.*
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor TROY.

53. (I) THE BIBLE AS LITERATURE.—A study of the King James version of the Bible, with emphasis upon the Hebrew artistry as discernible in translation, the poetic qualities characteristic of Tudor England, and the varied influence of the Bible upon subsequent English poetry.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th., 2:00-2:50 M.
Professor RAND and Associate Professor GOLDBERG.

54. (II) THE RENAISSANCE IN ENGLAND (1946-47).—A study of Sidney, Shakespeare, Jonson, Donne, Herrick, Marvell, and other lyrical poets of the period is followed by special emphasis upon Milton as the culminating poet of the Renaissance in England. Given in alternate years.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Associate Professor GOLDBERG.

55. (I) SHAKESPEARE.—This course is based upon the reading of about thirty of Shakespeare's plays, and attempts both to indicate the evolution of the dramatist and to emphasize the various phases of his art.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor RAND.

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* On leave of absence for military service

57. (I) ELIZABETHAN DRAMATISTS.—A study of Elizabethan Drama, exclusive of Shakespeare, with special consideration of the plays of such men as Lyly, Peele, Greene, Kyd, Marlowe, Jonson, Beaumont, Fletcher, Webster, Massinger.
3 class hours. Credit, 3.
2:00-2:50 Tu. W. Th. Professor PRINCE.

58. (II) AMERICAN POETRY (1946-47).—A study of American poetry as a movement away from its European origins to an American quality, the movement being traced through the work of Freneau, Bryant, Poe, Emerson, Longfellow, Whitman, Emily Dickinson, Edwin Arlington Robinson, and Vachel Lindsay. Given in alternate years.
3 class hours. Credit, 3.
12:00-12:50 M. W. F. Professor PRINCE.

59. (I) ENGLISH PROSE OF THE EIGHTEENTH CENTURY (1947-48). —A brief exposition of the thinking of the period in philosophy, government, and criticism as found in the work of Swift, Cooper (the Earl of Shaftesbury), Mandeville, Johnson, Boswell, Burke, and Paine. Given in alternate years.
3 class hours. Credit, 3.
12:00-12:50 M. F. W. Professor PRINCE.

60 (II) AMERICAN PROSE.—A course in American thought as revealed in Emerson, Thoreau, Hawthorne, Melville, Henry Adams, and Santayana.
3 class hours. Credit, 3.
2:00-2:50 Tu. W. Th. Professor PRINCE.

61. (I) ROMANTIC POETRY (1948-49).—A study chiefly in the beginning of Romanticism in English poetry as found in the work of Collins, Gray, Burns, and Blake, with considerable attention to the culmination of Romanticism in the poetry of Shelley and Keats. Given in alternate years.
3 class hours. Credit, 3.
12:00-12:50 M. W. F. Professor PRINCE.

62. (II) ROMANTIC POETRY (1946-47).—A contrasting study of Byron and the Lake Poets, and in some ways a continuation of Course 61. Given in alternate years.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th., 2:00-2:50 M. Professor RAND.

64. (II) VICTORIAN POETRY (1947-48).—A study of the Pre-Raphaelites, Tennyson, and Browning. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor RAND.

65. (I) ENGLISH PROSE OF THE NINETEENTH CENTURY.—A study of the chief Romantic and Victorian prose writers, especially Coleridge, Hazlitt, Carlyle, Newman, Ruskin, and Arnold.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Associate Professor GOLDBERG.

66. (II) MODERN POETRY (1947-48).—This course attempts to trace the spirit of twentieth century poetry from such authors as Hardy, Whitman, and Emily Dickinson to those of the present day. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor RAND.

68. (II) MODERN DRAMA (1946-47).— This course traces the development of English drama from the time of Ibsen to the present day. Its purpose is to impart an intelligent and sympathetic interest in the theatre of the twentieth century. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor RAND.

70. (II) ENGLISH PROSE FICTION.—A course designed to illustrate the development of English prose fiction, with emphasis upon the great novels of the eighteenth and nineteenth centuries.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Dr. HELMING.

71. (I) BIOGRAPHY (1948-49).—The history of biography as a literary type; discussion of leading biographers from Boswell to Maurois, with special emphasis upon the development of modern biographical method. Given in alternate years.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Dr. HELMING.

72. (II) AN INTRODUCTION TO LITERARY CRITICISM (1947-48).—A study of major critical attitudes and principles, in relationship to philosophic background and immediate application. Designed for students concentrating in languages and literature. Given in alternate years.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Associate Professor GOLDBERG.

81. (I) and (II) CREATIVE WRITING.—Advanced work in writing based upon specimens by authors of established reputation and upon the personal experience of the student.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professors TROY and HELMING.

83. (I) LIBRARY RESEARCH (1947-48).—Each student makes a considerable investigation of a subject of his own selection. An orderly accumulation of material is followed by a formal interpretation of its significance. Not offered in 1947-48.
3 class hours. Credit, 3.
Professor RAND.

85. (I) PRINCIPLES OF JOURNALISM.—A survey course designed to acquaint the student with the scope, principles, and practice of contemporary journalism. Stress is placed upon the role of the press as a social institution and upon the relationships between a general education and effective journalism. Principles are applied through analysis of journalistic work and through writing practice.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor MUSGRAVE.

86. (II) JOURNALISTIC TECHNIQUES.—Instruction and laboratory practice in writing various types of news stories, feature and magazine articles. The practice work is related to problems of interpretive writing, communication, and public opinion.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor MUSGRAVE.
Prerequisite, English 85 or permission of the instructor.

ENTOMOLOGY

Professor ALEXANDER, Professor CRAMPTON, Assistant Professor SWEETMAN, Assistant Professor SHAW, DR. SMITH.

26. (II) GENERAL AND FIELD ENTOMOLOGY.—The lectures are devoted to a brief survey of the entire field of entomology; structure and metamorphosis; the more important methods and materials for control of injurious species; a survey of the more conspicuous and important insects with particular attention to the fauna of New England. A laboratory period will be devoted to the preparation and formation of a collection of insects. Until about April 10th, this work will be done indoors and will consist of lectures and practical work preparatory to the field work after that date. Collections made by the students are studied in later courses.

2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 M. F.; 1:00-2:50 Tu. or W.
Professor ALEXANDER and Dr. SMITH.

51. (I) PESTS OF SPECIAL CROPS.—For students not specializing in entomology who desire a more complete knowledge of the insects connected with their major lines of work. Work in the laboratory consists of identification, life-history studies and control measures of important insect pests. Work of this nature is available on pests of field crops, market-garden crops, fruits, flowers, shade trees and shrubs, forest trees, household articles, domestic animals, and man.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 M.; 1:00-2:50 Tu.; 2:00-3:50 Th.
Assistant Professor SHAW.
Prerequisite, Entomology 26.

53. (I) APPLIED ENTOMOLOGY.—Studies on the more important insect pests, their life-histories, damage, identification, and methods of control. Special attention is devoted to the use of entomological literature, methods of preparing scientific papers, and the general principles of insect control.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 W.; 3:00-4:50 M. F. Assistant Professor SHAW.
Prerequisite, Entomology 26.

55. (I) 56. (II) CLASSIFICATION OF INSECTS.—Laboratory work on the identification of the major orders of insects. In Course 56, the immature stages of insects, with particular stress on their structure and recognition.

3 2-hour laboratory periods. Credit, 3.
8:00-9:50 Tu. Th.. S. Professors ALEXANDER and CRAMPTON.
Prerequisites, Entomology 26; Entomology 57, previously or concurrently.

57. (I) INSECT MORPHOLOGY.—The lectures treat of the internal and external anatomy of insects, particular stress being placed on those structures needed in classification, for use in the parallel Course 55. In the laboratory, the internal and external anatomy of the more important groups is studied, with emphasis on those characters most used in the determination of insects.

1 class hour; 3 2-hour laboratory periods. Credit, 4.
10:00-10:50 F.; 1:00-2:50 M. Tu. F. Professor CRAMPTON.
Prerequisite, Entomology 26.

60. (II) STRUCTURAL PEST CONTROL.—For students specializing in entomology, especially those desiring to enter the structural pest field, and others interested in gaining knowledge of methods of combating insect and rodent pests. The emphasis will be placed on the control of those pests attacking buildings and other structures, foods, fabrics, and other stored products in private homes or other establishments. The life history, feeding habits, methods of reproduction, and dispersal of the various species will be stressed in so far as these influence control measures.

2 class hours. Credit, 2.
Assistant Professor SWEETMAN.

72. (II) FOREST AND SHADE-TREE INSECTS.—The lecture work deals with the principles and methods of controlling insects which attack shade trees, forests and forest products. The laboratory periods are devoted to a study of the more important species, their identification, biology, and specific control measures. One afternoon for a field excursion is required.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 W.; 1:00-2:50 M. F. Professor ALEXANDER.
Prerequisite, Entomology 26; 55, 56, and 57 desirable.

74. (II) MEDICAL ENTOMOLOGY.—Diseases of man and animals that are transmitted by insects and other arthropods. Especial attention is

given to such transmission under war conditions, and to camp sanitation and similar topics.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Entomology 26.
Professor CRAMPTON.

79. (I) ANIMAL ECOLOGY.—Designed for students specializing in entomology, zoology, and related fields. The course deals with the relation of animals to their environment, covering the physical factors as temperature, moisture, light, etc., and the biotic factors as neighbors, competitors, predators, etc. Both terrestrial and aquatic communities are studied. The student is shown not only that animals do things, but why they make definite responses to the environmental factors. Actual measurements of the environmental factors and responses of the animals in the field and laboratory are included.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 M. F.; 3:00-4:50 M. Assistant Professor SWEETMAN.
Prerequisite, Entomology 26 or Zoology 1.

80. (II) INSECT CONTROL.—The scientific basis of insect control is considered from the chemical, biological, ecological, mechanical, and legislative approaches. Special emphasis is placed on the composition, manufacture, preparation, and reaction of insecticides, and the use of resistant hosts, micro-organisms and the larger parasites and predators that might be used in the control of insects.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 M.; 3:00-4:50 M. F. Assistant Professor SWEETMAN.
Prerequisites, Entomology 53, 55, and 57; 79 and 81 desirable.

81. (I) PHYSIOLOGICAL ENTOMOLOGY.—A detailed consideration is given to the organ systems, showing the functions such as nutrition, respiration, and growth, and the relationship of physiology to behavior. A portion of the laboratory time will be devoted to assigned individual problems dealing with any phase of insect biology or control and conducted on a research basis.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 W.; 3:00-4:50 W. F. Assistant Professor SWEETMAN.
Prerequisite, Entomology 26; 55, 56, and 57 desirable.

87. (I) 88. (II) SPECIAL PROBLEMS IN ENTOMOLOGY.—Problem work in many fields, as apiculture, biological control and insectary practice, insecticides, morphology, and classification. Intended primarily to introduce qualified students to research methods in some branch of entomology. Excess departmental credits are necessary for election.

Hours by arrangement. Credit, 1, 2, or 3.
The DEPARTMENT.

Prerequisites, Entomology 26, 53, 55, 57, and should be preceded or acaccompanied by any other courses in the restricted field of the problem.

90. (II) EVOLUTION.—In order to demonstrate the universal scope and operation of the laws of evolution, the course includes a brief sketch of the probable origin and evolution of matter as viewed in the light of modern physical and chemical research; the evolution of the solar system, leading to the formation of the earth; the changes in the earth, preparatory to the production of life; the physical and chemical basis of life; the probable steps in the formation of living matter, and the theories concerning it; the evolution of living things; the developmental history of man, and of the races of mankind; the evolution of human intelligence, languages, culture, institutions, etc., and man's probable future in the light of his past development. Especial consideration is given to the factors of evolution, the basic principles of heredity, variation, and similar topics, with particular reference to their application to human welfare.

2 class hours. Credit, 2.
10:00-10:50 M. F. Professor CRAMPTON.

Apiculture

66. (II) INTRODUCTORY BEEKEEPING.—The laboratory work consists of a study of beekeeping equipment and the methods of assembling this material; a study of pollen and honey plants; spring management. The lectures are intended to give the student a broad grasp of the entire field of beekeeping, considering such subjects as history; statistics of beekeeping in America; the races of bees; methods of management; bee-diseases; pollination; queen-rearing.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 M. F.; 1:00-2:50 M. Assistant Professor SHAW.

85. (I) ADVANCED BEEKEEPING.—The laboratory work consists of fall management, care of the honey crop, preparation of colonies for wintering, bee-diseases, and some simple types of biometrical problems. The lectures consider, among other things, the physical and chemical characteristics of honey and wax; chemical tests to detect adulteration of honey; bee-diseases; and biometry.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor SHAW.
Prerequisite, Entomology 66.

FLORICULTURE

Professor THAYER, Assistant Professor HUBBARD,
Mr. CORNELL, Mr. ROSS.

26. (II) GARDEN MATERIALS.—A study of the annuals, biennials, herbaceous perennials, bulbs, bedding plants, and roses that are valuable for use in floricultural or landscape gardening work. Methods of propagation, culture, and uses of the various plants are considered as well as identification of materials.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 M. F.; 3:00-4:50 M. Mr. CORNELL

51. (I) GREENHOUSE MANAGEMENT.—This course is intended to familiarize students with the methods and principles involved in the management of greenhouses and greenhouse crops; history and development of the floricultural industry, preparation of soils, fertilizers, potting, watering, ventilation, control of insects and diseases, methods of plant propagation, forcing of plants, soilless methods of plant culture. At some time during the semester the members of the class will be required to take a one-day trip to visit large commercial establishments at an approximate cost of five dollars.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 M. F.; 3:00-4:50 F. Professor THAYER and Mr. ROSS.

52. (II) FLORAL ARRANGEMENT.—A study of the principles involving the arrangement and use of cut flowers and plants; funeral designs, basket and vase arrangements, corsages, wedding bouquets, table decorations, home, church, and other interior decorations. A study of color and color harmony as applied to such work. This course is limited to ten students, preference being given to students specializing in floriculture and landscape architecture.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Th.; 1:00-2:50 M. F. Professor THAYER and Mr. ROSS.

54. (II) GREENHOUSE CONSTRUCTION AND HEATING.—The location, types, arrangement, construction, cost, equipment, heating, and ventilation of greenhouse structures; the drawing of plans and study of specifications. Special emphasis laid on heating problems.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 M. F.; 3:00-4:50 F. Professor THAYER.

58. (II) AMATEUR FLORICULTURE.—This course is intended primarily for major students in the division of home economics and for other women students. Three phases of floriculture will be considered: (1) the arrangement and use of cut flowers for decorative purposes in the home and elsewhere, (2) house plants, methods of propagation, (3) garden flowers and their uses on the home grounds.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu., 1:00-1:50 Th.; 1:00-2:50 W. or 2:00-3:50 Th.
Professor THAYER and Mr. ROSS.

75. (I) 76. (II) COMMERCIAL FLORICULTURE.—A detailed study of the cultural methods for the important commercial cut-flower crops and potted plants. The marketing of flowers and plants, including the management of wholesale markets and retail stores, a study of systems of record keeping, cost analysis, inventory methods, and other phases of this important part of the floricultural industry. Trips may be taken to nearby commercial establishments.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 Tu. Assistant Professor HUBBARD.
Prerequisite, Floriculture 51.

79. (I) CONSERVATORY PLANTS (1948-49).—Alternates with Course 81 for students specializing in floriculture. A study of the foliage and flowering plants used in conservatory work; methods of propagation; identification of materials.

1 class hour; 1 2-hour laboratory period. Credit, 2.
3:00-3:50 W.; 1:00-2:50 F. Professor THAYER and Mr. CORNELL.

81. (I) HERBACEOUS GARDENS AND BORDERS.—Alternates with Course 79 for students specializing in floriculture; given annually for students specializing in landscape architecture. This course is a continuation of Course 26 with emphasis on the use of herbaceous materials in various types of plantings and the planning of borders and gardens.

1 class hour; 1 4-hour laboratory period. Credit, 3.
10:00-10:50 Tu.; 1:00-4:50 M. Assistant Professor HUBBARD.
Prerequisite, Floriculture 26.

82. (II) SEMINAR.—For seniors specializing in floriculture. Presentation and discussion of research work in floriculture and other related fields.

1 class hour; 4 laboratory hours. Credit, 3.
Professor THAYER.

FOOD TECHNOLOGY

Professor FELLERS, Assistant Professor LEVINE,
Assistant Professor FITZPATRICK,* Assistant Professor KRANZ, Mr. MORSE.

51. (I) FRUITS AND VEGETABLE PRODUCTS.—This course, together with Course 52, gives the student a general elementary knowledge of the science and practice of food preservation. Principles and theories of the various methods of food manufacture are the basis for classroom exercises. The laboratory work deals largely with the preservation of the autumn fruits and vegetables, small fruit products, freezing, and dehydration. Enrollment limited to 25.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Tu.; Sect. I, 1:00-2:50 Tu., 2:00-3:50 Th.; Sect. II, 1:00-2:50 W., 8:00-9:50 S. Professor FELLERS.

52. (II) MISCELLANEOUS PRODUCTS.—This is a continuation of Course 51. The laboratory work includes pickles and pickle products, maple products, citrus products, fruit syrups, soups, condiments, and the canning of meats, poultry, and the spring vegetables. Enrollment limited to 25.

2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu. Th.; 1:00-2:50 Tu. or 8:00-9.50 S. Professor FELLERS.
Prerequisite, Food Technology 51.

61. (I) COMMERCIAL PRACTICES.—A survey of commercial practices in the manufacture and preservation of food products. This will involve a study of equipment, factory arrangement, sanitation, government regu-

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* On leave of absence for military service.

lations, and the operation of types of commercial equipment in quantity production.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement. Assistant Professor LEVINE.
Prerequisites, Food Technology 51 and 52; Bacteriology 31.

62. (II) TECHNOLOGICAL PROBLEMS.—This is a continuation of Course 61. The class exercises will deal largely with a survey study of the sources of raw material, commercial methods of manufacture, packing and distribution of the more common foods. The important contributions of research to food technology will be studied. Laboratory work will include the formation of research projects, interpretation of research data, the use of preservatives, the simple analysis of foods and the commercial practices as applied to preservation of such materials as are available: fish, meats, poultry, and spring vegetables. The inspection and grading of canned food will be studied. Sometime during the semester a two-day field trip to food plants in the Boston area will be taken. The trip will cost the student about five dollars.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement. Assistant Professor LEVINE.
Prerequisite, Food Technology 61.

71. (I) 72. (II) FOOD SCIENCE LITERATURE.—For seniors who specialize in food technology.

2 class hours. Credit, 2.
11:00-11:50 M. W. THE DEPARTMENT.

75. (I) AND (II) FOOD PRESERVATION.—Not open to students who have credit in Food Technology 51, 52, or 81. This course is designed to give a broad general knowledge of this subject. It treats of the intrinsic and extrinsic factors responsible for food spoilage. The various methods of food preservation are discussed from the chemical and microbiological standpoint. Laboratory exercises deal with packaging materials, canning and freezing; fruit and vegetable by-products.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement. Mr. MORSE.

82. (II) SPECIAL PRODUCTS.—The materials offered in this course are as follows: the home manufacture of fruit preserves, candied and glaceed fruits, fruit pastes, confections, candies, and other specialties. Approximately one-half the semester is devoted to elementary work in candy making.

2 2-hour laboratory periods. Credit, 2.
1:00-2:50 M. F. or 3:00-4:50 M. F. Mr. MORSE.

91. (I) EXAMINATION OF FOOD PRODUCTS.—Laboratory studies on the grading of foods, examination of foods for adulteration, testing accessory products for quality, and determining the causes of spoilage or de-

terioration in processed food products. Physical, chemical, microbiological, and microscopical methods will be employed. Enrollment limited to 18.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement. Professor FELLERS.
Prerequisites, Food Technology 51 and 52 or 75; Bacteriology 31; Chemistry 29.

92. (II) EXAMINATION OF FOOD PRODUCTS.—For students specializing in food technology this course is a continuation of Course 91. For students specializing in public health the course will deal with sanitation as it applies to the food industries. Food laws and regulations; grades; food and food plant inspection; trade association and cooperatives.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement. Professor FELLERS.
Prerequisite, Food Technology 51 or 75; Bacteriology 31; Chemistry 29.

95. (I) AND (II) INTRODUCTORY RESEARCH METHODS.—For food technology majors. The application of the fundamental sciences to food technology research. Library and laboratory research on assigned individual problems.

Hours by arrangement. Credit, 2.
THE DEPARTMENT.

FOREIGN LANGUAGES

FRENCH

Associate Professor GODING, Associate Professor FRAKER,
Assistant Professor CLARKE

1. (I) 2. (II) ELEMENTARY FRENCH.—The essentials of grammar are rapidly taught and will be accompanied by as much reading as possible. No credits in this course may be applied toward a degree until the close of the second semester, except upon special recommendation from the Dean.

4 class hours. Credit 3.
Associate Professor GODING.

5. (I) 6. (II) INTERMEDIATE FRENCH.—Grammar review and composition. Training for rapid reading. The reading of short stories, novels, and plays. Conducted in French.

4 class hours. Credit 3.
Associate Professor GODING and Assistant Professor CLARKE.
Prerequisites, French 1 and 2 or their equivalent.

7. (I) 8. (II) FRENCH SURVEY.—A general survey of the history of French literature and the development of French culture, with representative works of the important periods. Conducted in French.

4 class hours. Credit, 3.
Associate Professor GODING and Assistant Professor CLARKE.
Prerequisites, French 5 and 6 or their equivalent.

9. (I) 10. (II) INTENSIVE ORAL PRACTICE.—May be elected only in conjunction with other courses in French.
6 laboratory periods. Credit, 3.
The DEPARTMENT.

29. (I) 30. (II) FRENCH CLASSICISM (1947-48).—Alternate with Courses 31 and 32. A survey of the Classic period, with readings from representative works.
3 class hours. Credit, 3.
2:00-2:50 M. W. F. Associate Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

31. (I) FRENCH ROMANTICISM (1948-49).—Alternates with Course 29. A detailed study of the Romantic period. Readings from Hugo, de Vigny, Lamartine, de Musset, and others. Conducted in French.
4 class hours. Credit, 3.
2:00-2:50 M. W. F., 1 hour by arrangement. Associate Professor GODING.
Prerequisites, French 7 and 8 or their equivalent.

32. (II) FRENCH REALISM (1946-47).—Alternates with Course 30. A detailed study of the Realistic period and the modern writers. Readings from Balzac, Flaubert, Stendahl, Loti, Daudet, Anatole France, and others. Conducted in French.
4 class hours. Credit, 3.
2:00-2:50 M.F.W., 1 hour by arrangement. Associate Professor GODING.
Prerequisite, French 31.

71. (I) VOLTAIRE (1948-49).—A study of the eighteenth century through the life and works of Voltaire. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Associate Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

72. (II) FRENCH LYRICISM (1946-47).—Alternates with Course 80. A study of the French lyric poets, including excerpts in modern translation from the Middle Ages and from the various modern improvements through the nineteenth century. Collateral readings and reports.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Associate Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

79. (I) INTRODUCTION TO FRANCE (1947-48).—A study of those elements which lie back of the cultural contribution of France to the world civilization. Subjects studied will include arts, sciences, school systems, the press, the family, social classes, influences of history and geography. The assigned readings will be drawn from contemporary French literature. Given in alternate years. Conducted in French.
4 class hours. Credit, 3.
Associate Professor GODING.

80. (II) ADVANCED GRAMMER AND COMPOSITION (1947-48).—Alternates with Course 72. A thorough review of grammar, pronunciation, and the phonetic method.
4 class hours. Credit, 3.
8:00-8:50 Tu. Th. S., 1 hour by arrangement. Associate Professor GODING.

German

Professor JULIAN, Professor GRAHAM,* Assistant Professor ELLERT,
Miss GRAYSON

1. (I) 2. (II) ELEMENTARY GERMAN.—Grammar, prose composition, and reading. No credits in this course may be applied toward a degree until the close of the second semester, except upon special recommendation from the Dean.
3 class hours. Credit, 3.
Professor JULIAN, Professor GRAHAM, Assistant Professor ELLERT,
Miss GRAYSON.

25. (I) 26. (II) INTERMEDIATE GERMAN.—German prose and poetry; the simpler German drama; grammar review and advanced prose composition. Simpler passages of prose and poetry to commit to memory.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. or 10:00-10:50 M. W. F. or 9:00-9:50 Tu. Th. S.
Professor JULIAN, Assistant Professor ELLERT, and Miss GRAYSON.
Prerequisites, German 1 and 2, or Entrance German.

51. (I) 52. (II) NINETEENTH CENTURY LITERATURE.—A survey of German thought in the Nineteenth Century.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor ELLERT.
Prerequisites, German 25 and 26.

55. (I) 56. (II) "STORM AND STRESS" AND ROMANTICISM.—The "Storm and Stress" period of German literature, with study of the early plays of Goethe and Schiller. The Romantic period from Novalis to Heine, with study of poets, dramatists, critics, and philosophers.
3 class hours. Credit, 3.
10:00-10:50 Tu. S., 11:00-11:50 Th. Assistant Professor ELLERT.
Prerequisities, German 25 and 26.

57. (I) 58. (II) GOETHE'S FAUST.—
8:00-8:50 M. W. F. Professor JULIAN.
3 class hours. Credit, 3.
Prerequisites, German 25 and 26.

59. (I) 60. (II) THE CLASSICAL PERIOD.—Reading and study of some important literary productions of the classical period.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Assistant Professor ELLERT.
Prerequisites, German 25 and 26.

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* Visiting Professor.

79. (I) 80. (II) CONVERSATIONAL GERMAN.—Admission only by arrangement with the instructor in charge. Practice in the oral use of German, based on reading material prepared in advance.

3 class hours. Credit, 3.
Hours by arrangement. Professor JULIAN.
Prerequisites, German 25 and 26.

81. (I) 82. (II) SCIENTIFIC GERMAN.—Only seniors admitted, except by permission of the instructor. Intensive and specialized reading of literature in standard German scientific journals and reference books.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor JULIAN.
Prerequisites, German 25 and 26.

Latin

Assistant Professor HELMING

51. (I) 52. (II) LATIN.—A course in elementary Latin. No credits in this course may be applied toward a degree until the close of the second semester, except upon special recommendation from the Dean.

3 class hours. Credit. 3.
Hours by arrangement. Assistant Professor HELMING.

55. (I) 56. (II) LATIN.—For juniors and seniors who have taken Latin 51 and 52 or two years' work in secondary school. An interpretative survey of classical Latin prose and poetry, providing a grammar review and translation selected from the prose of Cicero, Livy, and Pliny, and from the poetry of Virgil, Horace, and Catullus.

3 class hours. Credit. 3.
Hours by arrangement. Assistant Professor HELMING.

Spanish

Associate Professor FRAKER

25. (I) 26. (II) ELEMENTARY SPANISH.—Grammar, exercises in composition and conversation, reading of selected short stories. No credits in this course may be applied toward a degree until the close of the second semester, except upon special recommendation from the Dean.

3 class hours. Credit. 3.
11:00-11:50 M. W. F. or 10:00-10:50 Tu. S., 11:00-11:50 Th.
Associate Professor FRAKER.

51. (I) 52. (II) INTERMEDIATE SPANISH.—Reading from modern fiction and drama, supplemented by grammar review, composition, and outside reading. Enrollment by permission of instructor.

3 class hours. Credit. 3.
Associate Professor FRAKER.

71. (I) 72. (II) THIRD-YEAR SPANISH.—A study of Spanish poetry and drama, supplemented by collateral reading, reports, and written and oral composition.
3 class hours. Credit. 3.
Associate Professor FRAKER.
Prerequisite, Spanish 52 or its equivalent.

FORESTRY AND WILDLIFE MANAGEMENT

Professor HOLDSWORTH, Professor TRIPPENSEE, Assistant Professor RICH, Assistant Professor RHODES, Mr. STICKEL

Forestry

26. (II) DENDROLOGY.—The taxonomic features, silvical characteristics, and geographical distribution of the trees of temperate North America, especially those of economic importance; identification of the native and naturalized woody plants occurring in the forests of the northeastern United States, in summer and winter condition, by means of artificial keys and first-hand examination.
2 class hours; 2 2-hour laboratory and field periods. Credit, 3.
Assistant Professor RHODES.

51. (I) FOREST MANAGEMENT OF WATERSHEDS.—For juniors and seniors specializing in bacteriology and public health. Admission by approval of instructor. A study of forest site—water factor relationships; the improvement of watershed forests through applied silviculture; relative values of tree species for watershed uses; forests and the quality of water supplies. Field trips to several town and city watersheds.
1 class hour; 1 4-hour laboratory period. Credit, 3.
Professor HOLDSWORTH and Assistant Professor RHODES.

52. (II) WOOD IN MODERN CONSTRUCTION.—The composition and anatomy of wood as affecting its use in structures. Recent technological advances which increase the availability of wood to the engineer.
1 class hour. Credit, 1.
Assistant Professor RICH.

53. (I) WOOD AND INSECTS.—Characteristics of wood of different tree species as related to insects; the nature and extent of insect attack as affecting the utility of wood in construction; preservation and control measures.
1 class hour. Credit, 1.
Assistant Professor RICH.

54. (II) WOOD AND CHEMISTRY.—The role of wood as raw material in chemistry; the structure and properties of different woods as related to their availability for chemical conversion; advances in the use of wood as a basic material.
1 class hour. Credit, 1.
Assistant Professor RICH.

55. (I) THE MEASUREMENT AND MANAGEMENT OF WOODLANDS.—Methods of determining the volume and value of the forest growing stock; type mapping; methods of predicting growth of trees and stands; the principles of forest regulation and sustained yield. This course is presented with special emphasis on forest measurement practices meeting New England conditions. The field work is done on Mt. Toby demonstration forest.

2 class hours; 1 4-hour laboratory and field period. Credit, 3.
Professor HOLDSWORTH, Assistant Professor RHODES, Mr. STICKEL.

56. (II) THE PRINCIPLES OF SILVICULTURE.—The methods of establishing and developing forest stands through the application of correct silvicultural practice. Intermediate cuttings and reproduction systems. Field work in applied silviculture, including the marking of forest stands for silvicultural treatment, is given on Mt. Toby demonstration forest.

2 class hours; 1 4-hour laboratory and field period. Credit, 3.
Professor HOLDSWORTH, Assistant Professor RHODES, Mr. STICKEL.

57. (I) SILVICS.—Forest ecology as a foundation for silvicultural practice: light, moisture, temperature, chemical, and mechanical conditions in relation to plant life; environmental factors from an ecolgical viewpoint, their effect upon forest vegetation, and how they are influenced by it; the development and silvical habits of the individual tree; the development, characteristics, and classification of forest communities; plant indicators; methods for the study and analysis of vegetation and its environment.

2 class hours; 1 4-hour laboratory and field period. Credit, 3.
Assistant Professor RHODES.

58. (II) FOREST ECONOMICS AND POLICY.—The growth and development of forestry from an historic viewpoint; the forest as a natural resource and its place in our economic life; our past and present forest resources; federal and state forest organization; private forestry; the development of a national forest policy.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor HOLDSWORTH.

59. (I) FOREST PROTECTION.—The principles of protecting forests from all harmful agencies but with special reference to the prevention and control of forest fires. Protection from injurious agencies other than insects and disease is also treated.

3 class hours. Credit, 3.
Mr. STICKEL.

75. (I) MANUFACTURE AND DISTRIBUTION OF FOREST PRODUCTS.—A study of the technique of manufacturing direct forest products, including cost and production studies and integrated utilization; also the seasoning, grading and special processing prerequisite to marketing.

3 class hours. Credit, 3.
Assistant Professor RICH.

76. (II) WOOD TECHNOLOGY.—The structure, composition and properties of wood in relation to its economic utilization; the complex substance of wood; wood-liquid relations as they affect seasoning, preservation, and technological processes for industrial purposes. Survey of technological advances in the usage of wood.
3 class hours. Credit, 3.
Assistant Professor RICH.

77. (I) WOOD IDENTIFICATION AND PROPERTIES.—The identification, largely by macroscopic features, of domestic woods principally used in building and construction. Discussion of properties and suitability of these woods for various uses. Keys for wood identification are developed.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor RICH.

78. (II). HARVESTING OF FOREST PRODUCTS.—Methods of harvesting forest products in the several forest regions of the United States with a study of the uses of modern machinery and techniques. Cost control as a factor in the development of harvesting methods and policies.
3 class hours. Credit, 3.
Assistant Professor RICH.

Wildlife Management

65. (I) CONSERVATION OF NATURAL RESOURCES.—Natural resources of the United States including soil, water, forests, wildlife, and the important minerals, the historic background of their use and their present status in relation to the social and economic welfare. Includes the discussion of various conservation problems in relation to national prosperity.
3 class hours. Credit, 3.
Professor TRIPPENSEE.

70. (II) WILDLIFE MANAGEMENT.—Life histories, ecology, and management of common game birds and mammals. Includes a study of natural habitats and methods of management.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor TRIPPENSEE.

71. (I) WILDLIFE MANAGEMENT.—Life histories, ecology, and management of waterfowl and fur bearers. Includes a study of natural habitats and methods of management.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor TRIPPENSEE.

73. (I) WILDLIFE MANAGEMENT.—Life histories, ecology, and management of predaceous birds and injurious mammals. Particularly designed for those who seek employment with rodent control division of Fish and Wildlife Service.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor TRIPPENSEE.

74. (II) Techniques in Wildlife Management.—Admission by permission of instructor. Quantitative field studies of wild animals of forest and farm. Includes cover mapping, habitat studies, census, food habits, and damage of game animals. For students interested in state and federal employment through civil service.
1 class hour; 1 4-hour laboratory period. Credit, 3.
1:00-1:50 W.; 1:00-4:50 M. Professor Trippensee.

FRENCH

See Foreign Languages

GENETICS

See Animal Husbandry, Pomology, Poultry

GEOLOGY AND MINERALOGY

Professor Wilson

27. (I) Physical Geology.—An introduction to the agents and processes that modify the earth's crust. Field trips by arrangement.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor Wilson.

28. (II) Historical Geology.—A survey of geological time, stressing the development of continents and the history of plants and animals. Field trips by arrangement.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor Wilson.

29. (I) Principles of Geography.—A study of the location, production, utilization, and the conservation of natural resources.
3 class hours. Credit, 3.
3:00-3:50 M. W. F. Professor Wilson.

51. (I) Mineralogy.—A descriptive study. Stress is placed upon the identification and occurrence of minerals.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Professor Wilson.

52. (II) Petrology.—A descriptive study of the classes of rocks with reference to manner of origin, modes of occurrence, structural features and the chemical and petrographic distinction within each group.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Professor Wilson.

61. (I) Physiography and Regional Geology—Eastern United States (1948-49).—A systematic study of the topography and geological features of the eastern United States. Field trips by arrangement. Given in alternate years.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor Wilson.

62. (II) PHYSIOGRAPHY AND REGIONAL GEOLOGY.—Western United States (1948-49).—A systematic study of the topography and geological features of the western United States. Given in alternate years.
3 class hours. Credit, 3.
11:00-11:50 M.W.F. Professor WILSON.

63 (I) INVERTEBRATE PALEONTOLOGY (1947-48).—A study of the history, development and identification of invertebrate animal fossils. Field trips by arrangement. Given in alternate years.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 W.; 10:00-11:50 M.F. Professor WILSON.

64 (II) PLANT PALEONTOLOGY (1947-48).—A study of the history, development, and identification of plant fossils. Field trips by arrangement.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 W.; 10:00-11:50 M.F. Professor WILSON.

71 (I) 72. (II) SPECIAL PROBLEMS.—For seniors specializing in geology.
6 laboratory hours. Credit, 3.
Hours by arrangement. Professor WILSON.

GERMAN

See Foreign Languages

HISTORY

Professor MACKIMMIE, Professor CALDWELL, Professor CARY, Assistant Professor PIERCE

5. (I) 6. (II) MODERN EUROPEAN CIVILIZATION.—The first semester covers the period from the Renaissance to 1815; the second semester, the period from 1815 to the present. These courses are required for candidates for the B.A. degree but may be elected independently by other students.
3 class hours. Credit, 3.
Professors MACKIMMIE, CALDWELL, and CARY.

25. (I) AMERICAN GOVERNMENT.—A study of the structure and operation of our federal government. The course is based on a study of the Constitution with reference to its historical development and interpretation. Special consideration is given to changes of the twentieth century and to present-day problems.
3 class hours. Credit, 3.
Professor CALDWELL.

31. (I) 32. (II) ENGLISH HISTORY.—Emphasis on economic, social, and cultural influences, as well as on constitutional development. Either semester may be elected independently.
3 class hours. Credit, 3.
Professors MACKIMMIE and CALDWELL.

52. (II) EUROPEAN GOVERNMENTS.—Forms and methods of the governments of Europe: historic types and theories of government, progress and problems of democracy; dictatorships and totalitarian governments. Special study of the governments of England, France, Switzerland, Italy, Germany, and Russia.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor MACKIMMIE.

53. (I) INTERNATIONAL RELATIONS IN THE PACIFIC AREA.—A survey of the development of hostilities and a study of the contemporary situation as it affects the peoples of South East Asia, Malaya, Sumatra, Java, New Guinea, the Philippines, Australia, New Zealand, the Pacific Islands, North and South America and others.
3 class hours. Credit, 3.
Assistant Professor PIERCE.

54. (II) THE FAR EAST.—A survey of the history and civilizations of the Orient, specializing on China, India, and Japan, and a study of the impact of western technology upon them. The nature of the conflict between China and Japan and the problems involved in the making of peace will be considered.
3 class hours. Credit, 3.
Assistant Professor PIERCE.

57. (I) 58. (II) HISPANIC-AMERICAN HISTORY.—A general course in the history and civilization of the Americas south of the United States. The first semester deals with the periods of exploration, organization, and revolution to 1824; the second semester, with the period of national independence and growth from 1824 to the present. Either semester may be elected independently.
3 class hours. Credit, 3.
Assistant Professor PIERCE.

59. (I) 60. (II) HISTORY OF THE UNITED STATES.—A survey of the national development including political, social, economic, and cultural factors in the growth of American democracy. The first semester covers the period to 1865; the second, from 1865 to the present. Either semester may be elected independently.
3 class hours. Credit, 3.
Professor CARY.

61. (I) ANCIENT GREEK HISTORY (1947-48).—Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor MACKIMMIE.

63. (I) ANCIENT ROMAN HISTORY (1948-49).—Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor MACKIMMIE.

65. (I) NINETEENTH AND TWENTIETH CENTURY ENGLAND (1947-48).—Victorian society and ideals; Industrial Revolution and its effects; growth of democracy; imperial development. Emphasis on social conditions and thought movements. Given in alternate years.

3 class hours. Credit, 3.

11:00-11:50 M. W. F. Professor CALDWELL.

Prerequisite, History 32.

67. (I) TUDOR AND STUART ENGLAND (1948-49).—A brief survey of the Tudor Period followed by a detailed study of Early Stuart England. Particular emphasis is placed on social, religious, and intellectual aspects of English life in the period. Given in alternate years.

3 class hours. Credit, 3.

11:00-11:50 M. W. F. Professor CALDWELL.

Prerequisite, History 31 or 32.

69. (I) EUROPE, 1870-1918.—Internal developments of the principal countries, including political and economic changes, social unrest, and intellectual currents; the development of imperialism; a detailed study of conditions and diplomacy which led to the World War; military history of the War.

3 class hours. Credit, 3.

Professor CALDWELL.

Prerequisite, History 6 or 32.

70. (II) EUROPE SINCE 1918.—A continuation of History 69, but may be elected independently. Approximately half of the course is devoted to international affairs, including the Peace Settlement, the development of German, Italian, and Japanese aggression, and World War II. The other half of the course is a study of internal developments in the principal European nations.

3 class hours. Credit, 3.

Professor CALDWELL.

Prerequisite, History 6 or 32, or permission of the instructor.

75. (I) MEDIEVAL EUROPE.—Europe from the barbarian invasions to the Renaissance. Social and economic conditions, development of national monarchies, the Church and religion, medieval culture.

3 class hours. Credit, 3.

Professor CARY.

76. (II) HISTORY OF THE RENAISSANCE.—For seniors only. The later Middle Ages; the Church at the height of power; the rise of nationalities; the Italian towns; the New Learning and its relation to art, science, invention, geographical discoveries; spread and effects of the Renaissance.

3 class hours. Credit, 3.

8:00-8:50 M. W. F. Professor MACKIMMIE.

82. (II) PROBLEMS IN AMERICAN DIPLOMATIC HISTORY.—For seniors only. The course includes a survey of foreign relations since 1898 and investigation of special problems in the field.
2 2-hour class periods. Credit, 3.
Professor CARY.

91. (I) HISTORICAL BIBLIOGRAPHY.—The student will be expected to know the principal secondary works and some of the more important source collections in various fields of history. Training in the assembling of a bibliography on special topics. By arrangement with the department.
Credit, 1.
The DEPARTMENT.

92. (II) SEMINAR.—Principles of historical criticism and research. By arrangement with the department.
Credit, 1.
The DEPARTMENT.

HOME ECONOMICS

Professor MITCHELL, Assistant Professor BRIGGS, Assistant Professor MERRIAM, Assistant Professor COOK, Assistant Professor LANGFORD, Miss DAVIS, Mrs. THIES

1. (I) INTRODUCTION TO HOME ECONOMICS.—Introduces the student to the overall objectives of Home Economics and the careers for which it prepares. Consideration is given to a philosophy of living which emphasizes the responsibility of a woman to her family, to her community wherever she is, and to the world. The laboratory includes food selection for health, and observation in the Nursery School.
2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-9:50 Tu. Th. S. reserved for special group projects.
Assistant Professor LANGFORD.

2. (II) CLOTHING SELECTION.—A study of the principles of clothing selection in order to assist each student to choose satisfactorily line, color, and texture. Fundamentals of construction for cotton and linen.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor BRIGGS.

26. (II) TEXTILES.—A study of fiber, yarn, finish, color and design. Acquaintance with a wide variety of fabrics is afforded to develop judgment in buying and using materials for clothing and home furnishing.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor BRIGGS.

30. (II) FOOD AND NUTRITION.—A study of fundamental principles and comparative methods of food preparation with emphasis on the nutritional and economic aspects of foods.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Miss DAVIS.

31. (I) APPLIED DESIGN.—Art principles are studied with many practical applications for selecting and arranging. Specific problems in decorating cloth, wood, and leather afford opportunity for individual expression.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor BRIGGS.

51. (I) FOODS AND NUTRITION.—Meal-planning, serving and etiquette with emphasis on well-balanced meals as to nutritive value and economy of money, time, and labor in preparation. Further study of food principles and techniques of cookery.

2 class hours; 1 4-hour laboratory period. Credit, 3.
Miss DAVIS.
Prerequisite, Home Economics 30; Chemistry 31 and 32.

52. (II) NUTRITION AND DIETETICS.—A study of the fundamentals of normal nutrition including energy needs, the metabolism of proteins, carbohydrates, fats, vitamins, and minerals; and the quantitative requirements for these various essential nutrients. Laboratory work provides for further study of the composition of foods and their contribution to the diet and the relationship of the nutritive value to cost. Nutritive loss due to cooking, storage, etc. is given consideration.

3 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor COOK.
Prerequisites, Home Economics 30; Chemistry 31 and 32 or Physiology 32.

53. (I) EXPERIMENTAL FOODS.—The testing and comparing of different food materials and methods of preparation, including advanced work in the science and techniques of cookery. Special individual problems will be studied. The course is helpful to those interested in commercial food testing and valuable to those wishing to develop a scientific approach to the study of foods.

2 2-hour laboratory periods. Credit, 2.
Miss DAVIS.
Prerequisites, Home Economics 30 and 51; Chemistry 31 and 32 and permission of instructor.

54. (II) NUTRITION.—This course is designed to interpret the technical knowledge of foods and nutrition in terms of its practical application for optimum health. For students who are not majoring in Home Economics and who do not have prerequisites for Home Economics 52.

2 class hours. Credit, 2.
Assistant Professor COOK.

60. (II) Given in 1946-47 as Agricultural Engineering 60.

61. (I) CLOTHING SELECTION AND CONSTRUCTION.—A study of art principles as they apply to clothing design. Principles of construction are given through the use of commercial patterns and flat pattern work in the making of garments.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 W.; 1:00-2:50 M. F. Assistant Professor BRIGGS.

62. (II) HOME FURNISHING.—A study of the fundamental principles which underlie the successful planning and furnishing of a satisfying home. Many applications of these principles are worked out in practical problems.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 W.; 1:00-2:50 M. F. Assistant Professor BRIGGS.

70. (II) HOME NURSING.—A brief survey of related community resources and important factors that make for healthful living in the individual family. Consideration will be given to health conditions in childhood, adolescence, and adult life that affect family members. Signs of illness and ways of caring for a patient in mild and chronic illness and convalescence.

3 class hours. Credit, 3.
Prerequisites, Bacteriology 31, Physiology 32. ——.

75. (I) ECONOMICS OF THE HOUSEHOLD.—A study of personal and family standards of living in the modern home, the economic relations of the household, and the use of time, energy, and money as a means to influence the home situation.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Assistant Professor LANGFORD.

77. (I) and (II) HOME MANAGEMENT PRACTICE.—Successive groups of seniors live in the home management house and assume responsibilities involved in managing a home. Meals are planned on low, medium, and high income levels.

Credit, 3.
Assistant Professor MERRIAM.
Prerequisites, Home Economics 51, 52, and 75, or by special permission.

80. (II) FAMILY LIFE.—A study of the modern family; ideals and responsibilities of the home and the individual's share in developing positive family relationships.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor LANGFORD.

81. (I) METHODS OF TEACHING HOME ECONOMICS.—A study of educational problems as applied to the teaching of home economics in junior and senior high schools. This course gives credit toward state certification. During the last month a 2-hour laboratory period replaces one lecture.

3 class hours. Credit, 3.
Assistant Professor MERRIAM.

83. (I) and (II) STUDENT TEACHING IN HOME ECONOMICS.—Observation and supervised teaching are carried on in the home economics classes in the nearby junior and senior high schools. Credit, 3.
Assistant Professor MERRIAM.
Prerequisite, Home Economics 81 or its equivalent.

84. (I) and (II) PROBLEMS IN HOME ECONOMICS.—By arrangement with the Dean of the School. An intensive application of home economics to special problems.

2 class hours; 1 2-hour laboratory period. Credit, 3.
HOME ECONOMICS INSTRUCTORS.

86. (II) CHILD DEVELOPMENT.—A study of the growth and development of the child, the care of children at various ages, treatment in behavior problems, and the influence of environment in shaping personality. The Nursery School provides a laboratory for this course.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Assistant Professor LANGFORD.

87. (I) ADVANCED CLOTHING PROBLEMS.—Costume designing and modeling give opportunity for experimentation in designing. Tailoring is emphasized.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 Tu.; 1:00-4:50 Tu. Assistant Professor BRIGGS.
Prerequisite, Home Economics 61.

89. (I) DIET THERAPY.—The application of nutrition principles to diet in disease. Recent theories of dietary treatment of gastro-intestinal disorders, obesity, anemia, fevers, diabetes, food allergy, cardiovascular and biliary tract diseases are reviewed critically. Students are required to use and be familiar with current medical literature as it applies to nutritional problems in disease and at the same time be open-minded regarding new development in this field. Scientific and medical terminology is emphasized.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor COOK.
Prerequisites, Home Economics 52; Chemistry 79; Physiology 32.

90. (II) NUTRITION SEMINAR.—For qualified seniors. Reading and oral reports of scientific literature and preparation of bibliographies.

1 class hour. Credit, 1.
Professor MITCHELL and Assistant Professor COOK.

91. (I) 92. (II) INSTITUTIONAL FOODS AND MANAGEMENT.—For qualified seniors interested in institutional food service. A study of the principles of organization, personnel management, the administration, food costs, operating expenses, and the special functions of the dietitian. Laboratory work at the College Dining Hall and dormitories. It is expected that students will enroll for the work of both semesters. Students wishing to qualify for administrative institutional work are advised to take Economics 81.

First semester, 1 class hour; 1-4-hour laboratory period. Credit, 3.
Second semester, 2 class hours; 1 2-hour laboratory period.
Assistant Professor COOK.
Prerequisite, Home Economics 51 and 52.

HYGIENE

Hygiene.—All freshmen are required to attend a series of lectures on personal hygiene. For men students these lectures are included in the Military program; for women students they are scheduled for second semester.

.... Credit, 1.
The Health Service Staff.

HORTICULTURE

See Landscape Architecture

LANDSCAPE ARCHITECTURE

Professor Otto, Professor Blundell, Assistant Professor Robertson, Mr. Creech, Mr. MacIver.

Art

25. (I) Freehand Drawing and Elementary Design.—For majors in landscape architecture. The work in this course is to supply the student with some of the technical aspects of freehand drawing and design necessary to proficiency in that field, and includes simple freehand drawing of elementary forms such as trees, shrubs, and other entourage of the designed garden, together with work in lettering and an approach to the elements of design.

2 3-hour laboratory periods. Credit, 3.
1:00-3:50 Tu. Th. Mr. MacIver.

26. (II) Landscape Drafting.—This course continues the work in Art 25, but draws on the mechanical aspects of the designers problems and includes simple projections—orthographic, perspective, and isometric—and combines these with shades and shadows to help develop the drawing ability of the student. With this also is included the more or less mechanical aspects of rendering architectural and landscape plans and elevations.

2 3-hour laboratory periods. Credit, 3.
1:00-3:50 Tu. Th. Mr. MacIver.

27. (I) Modeling.—A course in elementary modeling, of seeing, analyzing, and reproducing form in clay and modeling wax to develop sculptural technique.

6 laboratory hours. Credit, 3.
Assistant Professor Robertson.

28. (II) Modeling.—A continuation of Course 27 in advanced design and the making of plaster casts from original problems in small sculpture, such as plaques, masks, and medals or other such pieces.

6 laboratory hours. Credit, 3.
Assistant Professor Robertson.

Prerequisite, Art 27.

31. (I) ELEMENTARY DESIGN.—For women. Elementary principles of design as applied to textiles, fabrics, interior decorations, etc.
3 2-hour laboratory periods. Credit, 3.
Mr. MACIVER.

33. (I) FREEHAND DRAWING.—A non-professional course in elementary drawing and painting in various media in black and white. The work is more or less personal and is adapted to the individual capacities and backgrounds of each student as far as possible.
6 laboratory hours. Credit, 3.
Mr. MACIVER.

34. (II) FREEHAND DRAWING.—This non-professional course is essentially one in which the use of color is stressed in various media, freehand drawing is emphasized, and paintings in still-life and landscape subjects are produced.
6 laboratory hours. Credit, 3.
Mr. MACIVER.

75. (I) ART APPRECIATION.—An analysis of the principles of critical judgment underlying the fine arts, leading toward the enjoyment of art and its application to every day life.
3 class hours. Credit, 3.
Professor OTTO.

77. (I) EARLY AND MEDIEVAL ART.—An appreciative survey of art and history from early times through the medieval period. Works in painting, sculpture, architecture, and the minor arts are examined in the light of their contributions to the history of civilization, and to the development of art forms.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor ROBERTSON.

78. (II) RENAISSANCE AND MODERN ART.—This course is a continuation of Art 77, bringing the historical survey of art down to modern times. While it is advisable to take both courses, either may be elected independently.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor ROBERTSON.

83. (I) ARCHITECTURE (1948-49).—The history of architectural development, including styles of architecture and construction principles of value to the landscape architects when working with architectural problems. Interior arrangement of rooms and their decoration details will also be considered. Given in alternate years.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor ROBERTSON.

84. (II) SKETCHING.—Drawing and sketching in various mediums from outdoor and indoor subjects.
2 2-hour laboratory periods. Credit, 2.
1:00-2:50 M. F. Mr. MACIVER.

Horticulture

1. (I) Plant Propagation.—This course serves as an introduction to the field of horticulture, emphasizing the methods and principles involved in the propagation of horticultural plants.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor Thayer and Mr. Creech.

26. (II) Plant Materials.—Detailed study of deciduous and evergreen trees, with special reference to their mature form and character, means of identification, natural associations, and uses of the various types of trees in landscape work.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor Blundell.

51. (I) Plant Materials.—Detailed study of shrubs and woody vines, and their identification, with especial emphasis being given to their adaptability to the various landscape uses, methods of handling, and care.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor Blundell.

52. (II) Planting Design.—A study of the utilization of plant materials in combination as applied to the many conditions and demands of landscape work.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor Blundell.
Prerequisites, Horticulture 26 and 51.

Landscape Architecture

51. (I) Elements of Topography and Construction.—Coutour interpolation, grading and drainage plans, drive design, profiles and sections, computation of earth work. Application of surveying to landscape construction.
3 2-hour laboratory periods. Credit, 3.
1:00-2:50 M. W. F. Professor Otto.
Prerequisites, Civil Engineering 25, Art 26.

52. (II) Construction Details.—A series of problems in architectural garden features as walks, steps, walls, gates, pools, and small structures.
3 2-hour laboratory periods. Credit, 3.
1:00-2:50 M. W. F. Professor Otto.
Prerequisite, Landscape Architecture 51.

53. (I) Garden Design.—Fundamental principles of composition with application to problems in the design of gardens and small home grounds.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Mr. MacIver.
Prerequisites, Art 25 and 26 or permission of the instructor.

54. (II) GENERAL DESIGN.—A series of problems in the design of small properties, estates and parks. At some time during the semester the members of this class will be required to take a two-day field trip to visit typical examples of design; approximate cost, $8.00.

3 2-hour laboratory periods. Credit, 3.
Mr. MACIVER.
Prerequisites, Landscape Architecture 51, 53, and concurrently 52.

76. (II) CIVIC ART.—A survey of the principles and applications of modern civic art, including city planning, regional planning and the design of various types of land areas.

3 2-hour laboratory periods. Credit, 3.
3:00-4:50 M. F.; 1:00-2:50 W. Professor OTTO.
Prerequisites, Landscape Architecture 51 and 52.

79. (I) CONSTRUCTION AND MAINTENANCE (1947-48).—A study of construction methods and the maintenance of estate, park, and recreation areas. Given in alternate years.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor BLUNDELL.

80. (II) HISTORY AND LITERATURE OF LANDSCAPE ARCHITECTURE.—A review of the significant history and literature of landscape architecture and the allied fields of city planning, regional planning, and highway improvement. Compilation of bibliographies on various phases of these fields.

2 class hours. Credit, 2.
8:00-8:50 Tu. Th. PROFESSOR BLUNDELL.

81. (I) 82. (II) ADVANCED DESIGN.—Class B Exchange Problems plus specialized study of landscape details and a summary of general design. At some time during the year the members of the class may be required to take a two-day field trip to visit typical examples of design; approximate cost, $10.00.

3 2-hour laboratory periods. Credit, 3.
Professor OTTO.
Prerequisites, Landscape Architecture 53 and 54.

LATIN

See Foreign Languages

MATHEMATICS

Professor MOORE, Professor MACHMER, Assistant Professor BOUTELLE,
Assistant Professor ANDERSEN, Assistant Professor OSGOOD,
Mr. HANNUM*, Mr. SCHOONMAKER, Mr. BEYTES

Courses 3 and 4 are recommended for all non-engineering students who have adequate preparation. Majors in Engineering take courses 5 and 6.

1. (I) ALGEBRA.—For freshmen who are not taking Mathematics 3. A thorough study of the quadratic equation, simultaneous quadratic equations, systems of linear equations, determinants, elements of the theory of equations, logarithms, binomial theorem.
3 class hours. Credit, 3.
The DEPARTMENT.

2. (II) PLANE TRIGONOMETRY.—For freshmen who are not taking Mathematics 3 and 4. The development of trigonometric formulas, trigonometric equations, practical applications involving right and oblique triangles.
3 class hours. Credit, 3.
The DEPARTMENT.

3. (I) ALGEBRA AND PLANE TRIGONOMETRY.—This course is designed to furnish the necessary drill and foundation for many of the scientific and practical courses. Determinants, theory of equations, binomial theorem, permutations and combinations, probability, complex numbers. The trigonometry of the right triangle with applications.
3 class hours. Credit, 3.
The DEPARTMENT.

4. (II) TRIGONOMETRY AND PLANE ANALYTIC GEOMETRY.—A continuation of the study of plane trigonometry. Development of formulas. Solution of trigonometric equations in Cartesian and polar coordinates. DeMoivre's Theorem and its applications. A study of the properties of the line and conic sections. Representation of loci of certain higher plane curves.
3 class hours. Credit, 3.
Prerequisite, Mathematics 3.
The DEPARTMENT.

5. (I) 6. (II) PLANE AND SPHERICAL TRIGONOMETRY; PLANE AND SOLID ANALYTIC GEOMETRY; DIFFERENTIAL CALCULUS.—For engineering majors.
3 class hours. Credit. 3.
The DEPARTMENT.

27. (I) PLANE ANALYTIC GEOMETRY.—This course is designed for those who have had Mathematics 1 and 2 or their equivalents and who wish to prepare for later work in the calculus. It is not open to those who have received credit in Mathematics 3 and 4.
3 class hours. Credit, 3.
Prerequisite, Mathematics 2. The DEPARTMENT.

29. (I) DIFFERENTIAL CALCULUS.—The basic ideas and methods of the differential calculus. The course aims to give the student a realization of the power of the calculus as an instrument of analysis.
3 class hours. Credit, 3.
The DEPARTMENT.

Prerequisite, Mathematics 4 or 27.

30. (II) INTEGRAL CALCULUS.—A continuation of Mathematics 29 into the field of the integral calculus, with special emphasis on application to problems.

3 class hours. Credit, 3.

The DEPARTMENT.

Prerequisite, Mathematics 29.

31. (I) 32. (II) DIFFERENTIAL AND INTEGRAL CALCULUS; ELEMENTS OF DIFFERENTIAL EQUATIONS.—For engineering majors. A continuation of Mathematics 6.

4 class hours. Credit, 4.

Prerequisites, Mathematics 6. The DEPARTMENT.

55. (I) MATHEMATICS OF FINANCE.—The mathematical principles of simple and compound interest, annuities, depreciation, valuation of bonds, insurance. The development and application of aids to computation in problems arising from financial transactions.

3 class hours. Credit, 3.

10:00-10:50 Tu. S., 11:00-11:50 Th. Assistant Professor ANDERSEN.
Prerequisite, Mathematics 1 or 3.

60. (II) SPHERICAL TRIGONOMETRY AND SOLID ANALYTIC GEOMETRY (1947-48).—The trigonometry of the sphere with application to terrestrial and celestial problems. This is followed by a study of higher plane curves and the analytic representation of points, lines, and surfaces in space. Given in alternate years.

3 class hours. Credit, 3.

Professor MOORE.

Prerequisite, Mathematics 30.

62. (II) STATISTICS.—The fundamental mathematical principles of statistical analysis. The derivation of the basic formulas used, and the study and discussion of such topics as averages, dispersion, skewness, curve fitting, least squares, linear and curvilinear correlation, probability curve, probable error, sampling, reliability.

3 class hours. Credit, 3.

10:00-10:50 Tu. S.,11:00-11:50 Th. Assistant Professor BOUTELLE.
Prerequisite, Mathematics 4 or 27.

65. (I) THEORY OF EQUATIONS (1947-48).—An introduction to advanced algebra. A discussion of the conditions for and methods of solving algebraic and transcendental equations; ruler and compass constructions; systems of equations; determinants and matrices; symmetric functions; resultants; discriminants; invariants; the fundamental theorem of algebra. Given in alternate years.

3 class hours. Credit, 3.

9:00-9:50 Tu. Th. S. Assistant Professor BOUTELLE.
Prerequisite, Mathematics 4 or 27.

66. (II) INTRODUCTION TO HIGHER GEOMETRY (1947-48).—A study of various methods employed in the modern treatment of the geometry of points, lines, and conics. Such topics as homogeneous point and line coordinates; infinite elements; harmonic division; groups of transformations and their invariants; and the elements of projective and other geometries, will be considered. Given in alternate years.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor ANDERSEN.
Prerequisite, Mathematics 4 or 27.

71. (I) VECTOR ANALYSIS (1946-47).—The algebra and calculus of vectors. Applications to physics and other fields will be considered. Given in alternate years.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor ANDERSEN.
Prerequisites, Mathematics 30; Physics 26.

72. (II) HISTORY OF MATHEMATICS (1946-47).—A study of the great agencies which have developed progress in mathematics. Desirable for students planning to teach mathematics. Given in alternate years.
3 class hours. Credit, 3
9:00-9:50 Tu. Th. S. Professor MOORE.
Prerequisite, Mathematics 30.

91. (I) 92. (II) CALCULUS AND DIFFERENTIAL EQUATIONS.—A course devoted to the topics of the calculus more advanced than those encountered in Mathematics 29 and 30, such as series, expansion of functions, envelopes, partial differentiation and multiple integrals. This work is followed by a study of differential equations, a subject which dominates the field of applied mathematics.
3 class hours. Credit, 3.
8:00-8:50 M. W. F.
Professor MOORE and Mr. SCHOONMAKER.
Prerequisite, Mathematics 30.

Astronomy and Meteorology

57. (I) METEOROLOGY.—A consideration of weather elements, air masses, frontal structures and storms, the construction and interpretation of weather maps and the general principles of weather forecasting.
2 class hours. Credit, 2.
8:00-8:50 Tu. Th. Professor LANPHEAR.

58. (II) ASTRONOMY.—The course deals with a consideration of the atmosphere through which astronomical phenomena are observed; fundamental conceptions of the celestial sphere, the solor system, stars, galaxies. The chief objective is to make the student alive to the beauty and order revealed in the sky.
2 class hours. Credit, 2.
8:00-8:50 Tu. Th. Professor LANPHEAR.

MILITARY

Colonel RICHARD B. EVANS, Cavalry; Lieutenant Colonel FRANCES W. NYE, Air Corps; Major HOWARD C. PARKER, Cavalry

1. (I) 2. (II) Theoretical and practical instruction in leadership, drill and exercise of command, individual weapons and marksmanship, hygiene and first aid, maps and aerial photographs, military organization, world military situation, and the National Defense Act. ROTC regulations.
3 scheduled hours. First semester, Credit, 3.
Second semester, Credit, 2.
ARMY INSTRUCTORS.

25. (I) 26. (II) Theoretical and practical instruction in leadership, drill and exercise of command, physical development methods, maps, and aerial photographs, military administration, evolution of warfare, military law and boards, and world military situation.
3 scheduled hours. Credit, 2.
ARMY INSTRUCTORS.

51. (I) 52. (II) Theoretical and practical instruction in leadership, drill and exercise of command, occupied territories, military leadership, psychology and personnel management, military problems of the United States, and military law and boards; tactics and technique of cavalry or armored units for students in the armored vacalry unit; tactics and techniques of the Army Air Forces for students in the air corps unit.
5 scheduled hours. Credit, 2.
ARMY INSTRUCTORS.

75. (I) 76. (II) Theoretical and practical instruction in leadership, drill and exercise of command, military teaching methods, geographical foundations of national power, combined and joint operations, psychological warfare, military mobilization and demobilization, command and staff operations; tactics and technique of cavalry or armored units for students in the armored cavalry unit; tactics and techniques of the Army Air Forces for students in the air corps unit.
5 scheduled hours. Credit, 3.
ARMY INSTRUCTORS.

MUSIC

Assistant Professor ALVIANI

As an addition to the courses listed below, the College has made arrangements with thoroughly well-qualified teachers from the outside who will offer private instruction, without course credit, in voice, piano, organ, violin, viola, and ensemble. Those available for the present are: Voice, Esther Strong Clapp, B.A., Ella Duchemin Nutter; Piano and Organ, George Leland Nichols, B.A., Mus.B., Mus. M.; Violin, Viola, and Ensemble, Maurice Freedman. Arrangements can be made whereby instruction can be given in any other kind of instrumental music not already listed.

25. (I) CONDUCTING INSTRUMENTAL MUSIC.—This course is designed to acquaint the student with the techniques of directing instrumental groups, through the study of conducting, musical notation, and by the performance of compositions. A reasonable playing knowledge of an instrument is required.

Credit, 1.
Hours by arrangement. Assistant Professor ALVIANI.

26. (II) CONDUCTING CHORAL MUSIC.—The aim of this course is to teach the methods of directing choral groups. Students will study musical notation, perform choral works, as well as practice the techniques of conducting. Previous musical experience is desirable, but not required.

Credit, 1.
Hours by arrangement. Assistant Professor ALVIANI.

51. (I) 52. (II) "DISCOVERING MUSIC."—This elementary course is nontechnical in nature and is designed primarily for those students who would like to acquire a general background of knowledge of this great art. The course deals with "learning to listen"; and the meaning of form and place of rhythm, melody, harmony, and timbre. Excerpts from works of all the great masters will be used as illustrations and attendance at certain concerts will be recommended.

3 class hours. Credit, 3.
1:00-1:50 Tu. W. Th. Assistant Professor ALVIANI

61. (I) 62. (II) CONTEMPORARY MODERN AND NEW MUSIC.—A course recommended to all who wish to become familiar with modern and contemporary music, so that they will feel its quality, understand its enthusiasms, its technical resources and limitations, and its habits of thought and style.

3 class hours. Credit, 2.
9:00-9:50 M. W. F. Assistant Professor ALVIANI.
Prerequisite, Music 51 or 52 or permission of the instructor.

75. (I) 76. (II) HARMONY.—A study of harmonic principle, part writing for voices and small instrumental groups, and ear training. Previous musical experience is desirable but not required.

3 class hours. Credit, 3.
Hours by arrangement. Assistant Professor ALVIANI.

OLERICULTURE

Professor SNYDER, Assistant Professor TUTTLE, Mr. ——

25. (I) GENERAL OLERICULTURE.—A study of the factors affecting the growth of plants which are essential to a basic understanding of the cultural requirements of vegetable and other horticultural crops.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor SNYDER and Mr. ——.

51. (I) OLERICULTURE.—A critical study of the water and nutrient requirement of vegetable plants as applied to irrigation, soils and their preparation, manures, fertilizers, lime, green manures and crop residues.
3 class hours. Credit, 3.
Hours by arrangement. Assistant Professor TUTTLE.

52. (II) OLERICULTURE.—A study of certain environmental factors which influence the culture of vegetables as applied to actual commercial practices.
3 class hours. Credit, 3.
Hours by arrangement. Professor SNYDER.

73. (I) VEGETABLE MARKETING PRACTICES.—A consideration of the various factors, techniques, and methods in harvesting and preparing vegetables for market, including marketing centers, production areas, market and consumer preference, packing house facilities and equipment, and premarket storage. Trips to nearby growers and markets will be required at a cost of not over ten dollars.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor SNYDER.
Prerequisite, Agricultural Economics 55.

74. (II) MERCHANDISING OF PERISHABLES.—Discussion and demonstrations in this course will include the various techniques, practices, and methods that are used in selling and distributing horticultural commodities through both wholesale and retail outlets from the farm to the ultimate consumer. Trips to the Boston and New York markets may be elected by the student at a reasonable cost.
3 class hours. Credit, 3.
Professor SNYDER.

75. (I) SYSTEMATIC OLERICULTURE.—A detailed study of variety identification; nomenclature and classification; history, variety improvement and seed sources; judging and exhibiting.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement. Professor SNYDER.

76. (II) GREENHOUSE CROPS AND PLANT GROWING (1946-47).—A study of the culture of greenhouse crops including cucumbers, tomatoes, lettuce, rhubarb, and mushrooms; the growing of seedling plants both under glass and in the open for local retail or wholesale business.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor SNYDER.

78. (II) COMMERCIAL OLERICULTURE.—A study of the problems in the commercial production of vegetables: general culture, fertilizers and manures, machinery, labor, harvesting, and marketing. One or two trips to important markets and truck growing sections are required. Twenty-five dollars will cover the cost of these trips.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor SNYDER.

81. (I) 82. (II) SEMINAR.—Advanced study of problems relating to vegetable production.

1 class hour. Credit, 1.
Hours by arrangement. The DEPARTMENT.

ORIENTATION

Professor LANPHEAR

1. (I) ORIENTATION COURSE.—A survey course for those desiring further training in methods of study and thinking and at the same time a broad view of the physical universe. The course aims to organize as a unity materials from astronomy, geology, chemistry, and physics and to build these into a picture of the known universe. The scientific method by which principles are developed is stressed as well as facts. The subject matter is used as a basis for showing proper procedure in developing sound study and thought habits.

3 class hours. Credit, 3.
Professor LANPHEAR.

PHILOSOPHY

Professor GLICK

61. (I) FUNDAMENTALS OF PHILOSOPHY.—A general approach to the study of philosophy both from the standpoint of method and content. This course attempts to provide a background for the understanding and evaluation of theories of education, religion, ethics, metaphysics, etc.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor GLICK.

62. (II) HISTORY OF PHILOSOPHY.—A survey of the development of thought from the early Greeks to the recent past. Emphasis is placed upon the relation of philosophy to life as a whole with emphasis upon ethical, political, religious, educational, and metaphysical problems.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor GLICK.

63. (I) LOGIC.—The primary function of logic as conceived in this course is to study the rules and techniques of thinking as applied to interpreting and evaluating the facts of science and the data of experience in general. A secondary aim is to study the structures of thought from the standpoint of clearness and ease of expression and the effectiveness of conviction. Logic is considered not only as a tool but as an art as well. It should possess something of the thrill of a game rather than the mere grind of a chore.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor GLICK.

64. (II) ETHICS.—A study of the fundamental ethical theories and practices both historical and contemporary. Ethical theories are studied in relation to different types of civilization and an attempt is made to evaluate the significance of each in our present civilization.

3 class hours. Credit, 3.

9:00-9:50 M. W. F. Professor GLICK.

PHYSICAL EDUCATION FOR MEN

Professor GORE, Professor RADCLIFFE, Professor HARGESHEIMER, Assistant Professor DERBY, Assistant Professor BRIGGS, Assistant Professor ROGERS, Assistant Professor ECK, Assistant Professor KAUFFMAN*, Mr. BALL, Mr. RIEL, Mr. SALWAK.

3. (I) 4. (II) PHYSICAL EDUCATION—PHYSICAL FITNESS ACTIVITY COURSE.—Planned progressively to help every man student meet reasonable minimum standards of physical fitness and through regularity and continuity of physical exercise to maintain good physical condition. The men are given physical fitness ratings and must meet minimum standards in use of obstacle course, the basic skills in several team sports, as well as learn to swim.

5 hours. Credit, 1.

8:00-8:50 or 9:00-9:50 M. Tu. W. Th. F.

Professor GORE, Assistant Professor ROGERS,
Mr. RIEL, and the DEPARTMENT

5. (I) PHYSICAL EDUCATION SURVEY.—A survey of the health, physical education, and physical recreation courses which make up the physical education major. This course provides an introduction to the broad field of physical education.

3 class hours. Credit, 3.

Professor GORE, Assistant Professor ROGERS,
Mr. RIEL, and the DEPARTMENT

33 (I) 34. (II) PHYSICAL EDUCATION.—A physical fitness activity program.

3 hours. Credit, 1.

The DEPARTMENT.

63. (I) 64. (II) PHYSICAL EDUCATION.—A physical fitness activity program.

3 hours. Credit, 1.

The DEPARTMENT.

83. (I) 84. (II) PHYSICAL EDUCATION.—A physical fitness activity program.

3 hours. Credit, 1.

The DEPARTMENT.

22. (I) and (II) FIRST AID INSTRUCTORS.—The First Aid training course includes standard, advanced, and instructor courses, leading to qualification as American Red Cross First Aid Instructor with work in athletic training techniques and accident prevention.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor GORE.

41. (I) WINTER ACTIVITIES.—Winter ice and snow activities programs, including skiing, skating, conduct of winter carnivals, winter sports safety; and the design, construction, and maintenance of winter sports facilities.

1 class hour; 1 2-hour laboratory period. Credit, 1.
9:00-9:50 Th.; laboratory hours by arrangement.
Professor GORE and Assistant Professor BRIGGS.

42. (I) and (II) AQUATICS.—The aquatic course gives training in water safety, swimming, diving, canoeing, boating, life-saving, and recreational swimming, leading to possible qualification as American Red Cross Water Safety instructor.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement.
Professor GORE, Assistant Professor ROGERS,
and the DEPARTMENT.

43. (I) OFFICIATING.—Technique and practice in officiating major sports.
1 class hour; 1 2-hour laboratory period. Credit, 1.
Hours by arrangement. Mr. BALL and Mr. RIEL.

44. (II) TESTS AND MEASUREMENTS.—This course considers the status of measurement in physical education, an historical sketch, typical contributions in anthropometrics, strength tests, ability and achievement tests, cardiac functional tests, neuro-muscular control tests, and sport technique tests; and it includes the tools of measurement, indices, and the theory and practice of test administration.
2 class hours. Credit, 2.
11:00-11:50 M. F. Assistant Professor DERBY.

45. (I) HISTORY AND PURPOSES OF PHYSICAL EDUCATION.—A brief study of the history of the development of the various systems of physical education and a study of the aims and ideals of present-day physical education.
2 class hours. Credit, 2.
11:00-11:50 M. W. Professor GORE.

46. (II) ORGANIZATION AND ADMINISTRATION OF PHYSICAL RECONDITIONING.—This course includes problems of the physical reconditioning program, classification of patients, special considerations for different classes of patients, remedial exercises for special disabilities, special exercise

machines, work therapy for physical reconditioning, activities for small and large groups, records and record keeping forms, and methods and mechanics of teaching rehabilitation groups.

2 class hours; 1 2-hour laboratory period.. Credit, 3.
Hours by arrangement. Mr. RIEL.

51. (I) INTRODUCTORY COURSE FOR TEACHER-COACHES.—This course outlines the coaching of football, soccer, and basketball.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 W.
Professor HARGESHEIMER and Assistant Professors ECK and BRIGGS.

52. (II) INTRODUCTORY COURSE FOR TEACHER-COACHES.—Continuation of Course 51. This course outlines the coaching of baseball, track and field athletics, hockey, and athletic pedagogy.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 W.
Assistant Professor DERBY, Mr. RIEL and the DEPARTMENT.

53. (I) PHYSICAL EDUCATION—ELEMENTARY SCHOOLS.—This course includes the objectives, organization, significance, and content of physical education in the grade schools. The course is correlated with the requirements of the State Department of Education.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; 1:00-2:50 M. Assistant Professor DERBY.

54. (II) PHYSICAL EDUCATION.—SPECIAL METHODS.—This course includes the objectives, significance, organization and content of physical education in junior and senior high school. The course is correlated with the requirements of the State Department of Education.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; 1:00-2:50 M. Assistant Professor DERBY.

56. (II) ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION.—Considers the organization and administration of a department of physical education. Design, construction, maintenance, and service considerations of physical recreational areas are studied.

2 class hours. Credit, 2.
9:00-9:50 Tu. Th. Professor HICKS.

57. (I) ORGANIZED CAMPING TECHNIQUES.—This course covers details of camping techniques from the three-fold angle of organized camp counselor, i.e., as a child counselor, as a general activities counselor, and as a specialty counselor.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor GORE.

58. (II) ORGANIZED CAMPING ADMINISTRATION.—This course includes the history of organized camping, minimum standards of health and safety, the development of camping philosophies, trends, and the camping industry.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor GORE.

59. (I) SCOUTING ELEMENTS AND PRINCIPLES.—A course in the elements and principles of scoutmastership, given in cooperation with the Scout Executive, Hampshire-Franklin Council, B.S.A.
1 class hour; 1 2-hour laboratory period. Credit, 2.
Hours by arrangement. Professor GORE.

71. (I) 72. (II) SPECIAL PROBLEMS COURSES.—Presentation and discussion of research work in physical education, physical recreation, health and safety education, or athletics.
3 class hours. Credit, 3.
Hours by arrangement. Professor GORE and the DEPARTMENT.

73. (I) RECREATION—ADMINISTRATION AND ORGANIZATION.—Administration and organization of recreational areas, including playground layouts, equipment supplies, maintenance, leadership, training activities, conduct of programs, and problems of operations.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor GORE.

74. (II) RECREATION—RECREATION LAND USE.—Including types of recreational areas, recreational resources, recreational needs of the people, geography of recreation, competitors of recreational land use, economic aspects of federal, state, and local recreational systems.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor GORE.

76. (II) ANATOMY GENERAL.—A course in structural human anatomy.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Dr. RADCLIFFE.

78. (II) ANATOMY APPLIED—KINESIOLOGY.—A course aimed to give the anatomical application basal to a thorough understanding of the mechanical problems in apparatus, athletic, and corrective exercises.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Dr. RADCLIFFE.
Prerequisite, Physical Education 76.

PHYSICAL EDUCATION FOR WOMEN

Miss Totman, Mrs. Gaskill, Miss Hubbard, Miss Wagner

7. (I) 8. (II) Physical Education.—Students are required to participate in one term of dancing and in one team sport. Except for these requirements, all unrestricted students may select any activity which is offered. Fall season: field hockey, volleyball, soccer, archery, tennis, swimming. Winter season: basketball, volleyball, badminton, swimming, life saving (by permission), modern dance, square dance, calisthenics, posture training. Spring season: softball, soccer, archery, swimming, modern dance.

3 class hours. Credit, 2.

The Department.

27. (I) 28. (II) Physical Education.—The activities offered in Courses 7 and 8 are continued. In addition, advanced modern dance is offered in the fall season and water safety instruction in the winter season. Unrestricted students may select any activity which is offered.

3 class hours. Credit, 2.

The Department.

61. (I) 62. (II) Physical Education.—Participation in the activity classes for freshmen and sophomores, with the purpose of gaining further skill and developing physical fitness.

3 class hours. Credit, 1

The Department.

81. (I) 82. (II) Physical Education.—Participation in activity courses for physical fitness with opportunity to learn refereeing in sports and to assist in teaching individual sports.

3 class hours. Credit, 1

The Department.

PHYSICS

Professor Powers, Associate Professor Alderman,
Assistant Professor Ross, Assistant Professor Burpo, Mr. Wannlund

25. (I) Mechanics, Sound, and Heat.—This course is largely a study of the following and related topics: equilibrium of bodies; forms of energy and work; motion; fluids; surface tension; molecular phenomena; elasticity; wave-motion; sound; thermometry expansion; hygometry; transmission of heat; changes of state; radiation.

3 class hours; 1-2 hour laboratory period. Credit, 4.

The Department.

Prerequisite, Mathematics 2 or its equivalent.

26. (II) Light and Electricity.—Includes wave-theory of light; optical instruments; analysis of light; interference; polarization; magne-

tism; electrostatics; production and properties of electric currents; electrical appliances and machines; oscillatory circuits; vacuum tubes, and related topics.
3 class hours; 1 2-hour laboratory period. Credit, 4.
The DEPARTMENT.
Prerequisite, Physics 25.

51. (I) 52. (II) MAGNETISM, ELECTRICITY, PHOTO-ELECTRICITY, THERMIONICS AND APPLICATIONS.—Course 51 deals largely with direct currents; Course 52 with alternating currents, applications of thermionics, and photo-electricity. These courses are planned to give the student a good training in theory and methods of measurement in the subjects indicated, which are useful in many fields of investigation. Modern methods are stressed and instruments of precision are used.
2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu., Th.; 10:00-11:50 Tu. or 1:00-2:50 Tu. or W.
Professor POWERS.
Prerequisites, Physics 26 and Mathematics 29 for Course 51; Physics 51 for Course 52.

55. (I) 56. (II) MECHANICS.—Development of the fundamental concepts of dynamics with applications to particles and rigid bodies in translation and rotation. One laboratory period may be substituted for one class hour.
10:00-10:50 M. F.; other hours by arrangement.
Assistant Professor ROSS.
Prerequisites, Physics 26; Mathematics 30.

58. (II) ELEMENTS OF PHOTOGRAPHY.—Discussion of types of cameras, lenses, films, exposure meters, processing of films and papers, enlarging, composition, color photography, photomicrography. A 2-hour laboratory period may be substituted for the class hour.
1 class hour. Credit, 1.
3:00-3:50 W. Professor POWERS.

60. (II) SOUND AND ACOUSTICS.—A study of the vibrations, vibrating bodies, coupled systems, sound structure, and acoustic properties. The work will include many applications of sound to technical and commercial fields.
3 class hours. Credit, 3.
Associate Professor ALDERMAN.
Prerequisite, Physics 55 or its equivalent.

61. (I) 62. (II) HEAT AND THERMODYNAMICS (1947-48).—A study of heat exchanges and energy changes due to heat in systems of matter. The subject material and experimental methods are useful in other branches of science. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; 2:00-3:50 Th. Associate Professor ALDERMAN.
Prerequisites, Physics 26; Mathematics 29.

63. (I) 64. (II) OPTICS (1948-49).—An intermediate course in the theory of light. Work in geometrical and physical optics is done. Precision instruments are used in the laboratory. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; laboratory hours by arrangement.
Associate Professor ALDERMAN.
Prerequisites, Physics 26; Mathematics 29.

75. (I) 76. (II) ADVANCED EXPERIMENTAL WORK IN SELECTED TOPICS.—These courses are largely experimental and the subject matter is adapted to the needs of the individual student. The research viewpoint is emphasized. The class hour is used for a course in precision of measurements.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor POWERS.
Prerequisites, Physics 51-52 or 55-56 or 63-64; Mathematics 29 and 30.

85. (I) 86. (II) MODERN PHYSICS (1947-48)—Typical subjects studied are theories of the atom, radiation, quantum theory; spectra, X-ray analysis, nuclear reactions. Given in alternate years.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor POWERS.
Prerequisites, Physics 51, 62 and 64 or equivalent; Mathematics 29 and 30.

95. (I) 96. (II) ELECTRONICS (1946-47).—Given in alternate years.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor POWERS.
Prerequisites, Physics 51, 52; Mathematics 29, 30.

PHYSIOLOGY

Professor GAGE, Mr. BLAIR

32. (II) PHYSIOLOGY.—Exercises on basic biological laws are considered, so essential to the comprehension of modern physiology. The study and use of instruments are used to illustrate the various phases presented. Aspects of muscle and nerve physiology, circulation, and hemo-dynamics will be considered.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Mr. BLAIR and Professor GAGE.

75. (I) PHYSIOLOGY.—A continuation of Course 32. Alimentation; physiology of nutrition, including diet, calorimetry, energy exchange, and basal metabolism, followed by work on the physiology of elimination. Studies on lymphatics and ductless glands will be included. This course is especially planned to further physiological applications for students in nutrition, bacteriology, zoology, and the biological sciences.
2 class hours; 1 2-hour laboratory period. Credit, 3.
2:00-3:50 Tu. Th. Professor GAGE.
Prerequisite, Physiology 32.

76. (II) Physiology (1946-47).—This is a continuation of Course 75 and is planned to make demonstrations in advanced neuro-muscular physiology, respiration, circulation and in endocrinology. This course is of particular value to advanced students who contemplate graduate study or work in physiology, serology, nutrition or bacteriology. The study and use of modern advanced methods and equipment are taught in this class. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.
2:00-3:50 Tu. Th. Professor Gage.
Prerequisite, Physiology 75.

77. (I) Physiology.—This course is planned for those students who have studied organic chemistry and physics. It will be of service to all students in the biological sciences. The discussions and laboratory demonstrations will concern the nature of the processes underlying vital phenomena which are common to most living matter. It will deal exclusively with the fundamental principles which govern activities and life of animals and human beings.
2 class hours; 1 2-hour laboratory period. Credit, 3.
1:00-1:50 M. W.; 2:00-3:50 W. Mr. Blair.
Prerequisite, Physiology 32.

79. (I) Physiology.—This is an advanced course arranged only for students who are familiar with physiological technique. The course will deal with the physiology of the special senses such as taste, smell, touch, sight, and hearing.
2 class hours; 1 2-hour laboratory period. Credit, 3.
2:00-3:50 M. F. Professor Gage.
Prerequisite, Physiology 32.

80. (II) Problems in Applied Physiology (1947-48).—In this course will be considered physiological methods used in the arts and industries, studies on physiological efficiency, methods applied in the study of tissue function, physiological standards for military and industrial fitness, together with experiments on human and animal plant dynamics. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Physiology 32. Professor Gage.

POLITICAL SCIENCE

See Economics

POMOLOGY

Professor Van Meter, Professor French, Assistant Professor Roberts

26. (II) Small Fruits.—A study of the growing of raspberries, blackberries, strawberries, currants, blueberries, and grapes, dealing with such questions as varieties, selecting a site for the plantation, soils, fertilizers, pruning, harvesting, and marketing.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor French.

53. (I) GENERAL POMOLOGY.—A study of the most improved practices in fruit production and marketing, including such questions as the selection of orchard sites and soils, laying out and setting the orchard, the structure and growth of fruit plants; the bearing habits, pruning and training of fruits; fertilizers, pollination, and winter injury.
2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; 3:00-4.50 F. Assistant Professor ROBERTS.

56. (II) SPRAYING.—This course is especially designed to familiarize the student with details of pest control in the orchard. It involves a study of (a) spraying and dusting machinery, including the structure and care of the principal types of pumps, nozzles, hose, and vehicles; (b) methods in the application of materials used in orchards, with the important considerations for spraying each fruit and for combating each orchard pest; (c) preparation for use of the common fungicides and insecticides.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Tu.; 1:00-2:50 Tu., Th.
Assistant Professor ROBERTS.

57. (I) FRUIT JUDGING.—Practice in the selection and judging of fruit for exhibition purposes. The student has opportunity to compare fruit of the principal varieties as grown in different sections of the country and learns to identify fruit blemishes caused by various insects, diseases, and physiological disturbances. From this class a team is selected to represent the College in the New England and the Eastern Intercollegiate Fruit Judging Contests.
1 class hour. Credit, 1.
Hours by arrangement. Professor FRENCH.

75. (I) SYSTEMATIC POMOLOGY (1948-49).—A study of the more important kinds and varieties of fruits grown in the United States, their relationships and nomenclature. Particular emphasis is placed upon the identification, classification, and value of varieties including a study of the characters of the plant as well as the fruit. Given in alternate years.
1 class hour; 3 2-hour laboratory periods. Credit, 4.
9:00-9:50 Tu.; 1:00-2:50 M. W. F. Professor FRENCH.

77. (I) COMMERCIAL POMOLOGY (1947-48).—A critical consideration of the picking, handling, storing, and marketing of fruits, including a discussion of storage houses, fruit packages, methods of refrigeration, grading, and packing. This course also considers the leading American and foreign centers of fruit production as they affect our own fruit industry through competition here or abroad. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 W. Assistant Professor ROBERTS.

81. (I) 82. (II) ADVANCED POMOLOGY.—A consideration of the scientific principles governing the growth and behavior of fruit-bearing plants. Special attention is given to the more important research work in the field of pomology.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor VAN METER.
Prerequisite, Pomology 53.

83. (I) 84. (II) SEMINAR.—Advanced study of problems relating to fruit production.

1 class hour. Credit, 1.
Hours by arrangement. Professor VAN METER.

Plant Breeding

51. (I) PLANT GENETICS.—A study of the principles of genetics with emphasis on their application to plants.

3 class hours. Credit, 3.
Professor FRENCH.

52. (II) ADVANCED PLANT BREEDING.—An advanced study of genetic topics peculiar to plants, also the methods and problems of the plant breeder. Laboratory work in genetic analysis and the breeding of plants.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Plant Breeding 51. Professor FRENCH.

81. (I) 82. (II) SPECIAL PROBLEMS IN PLANT BREEDING.—Qualified seniors may carry on advanced study on special topics or undertake such original investigations as time and available material will permit.

Hours by arrangement. Credit, 2.
Prerequisite, Plant Breeding 52. Professor FRENCH.

POULTRY HUSBANDRY

Professor JEFFREY, Professor SANCTUARY, Assistant Professor BANTA,
Assistant Professor VONDELL

25. (I) GENERAL POULTRY.—A general course giving an introduction to the breeds of poultry, the principles and practice of breeding, incubation, and poultry nutrition, brooding and rearing, houses and equipment, management practices, marketing poultry products, and the business of poultry keeping.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 M. F.; 1:00-2:50 Tu. or 3:00-4:50 Tu.
Professor JEFFREY and The DEPARTMENT.

51. (I) POULTRY NUTRITION.—A study of the scientific principles of nutrition will be made. The mechanics of digestion and the functions and the metabolism of nutrients will be considered. Feeds will be classi-

fied, identified, and evaluated and rations calculated to meet the requirements for a balanced diet. Methods of feeding will be studied and the management of a group of birds on the floor and in cages will be required for a period of a few weeks.
2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 M. F.; laboratory hours by arrangement.
Assistant Professor BANTA.

52. (II) INCUBATION AND BROODING.—This course is based upon the actual operation of incubators and brooders. Each year a research project is planned and data obtained concerning the effects of various incubator adjustments upon malpositions and maldevelopment of embryos and the percentage of hatch. Studies of temperature gradients, chick behavior and development are made in brooding with various types of equipment. Analysis is made of common and unusual field problems.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
2:00-3:50 Th.; other hours by arrangement. Professor SANCTUARY.

53. (I) POULTRY JUDGING.—In this course the fowl is considered as the real basis of the industry. A study is made of the origin and evolution of our standard breeds and varieties of domestic fowl and their present commercial importance. An evaluation is made of certain anatomical and physiological characters used in production judging. Exhibition judging by score card and comparison receive consideration. One or more commercial plants, an egg laying test, and a poultry show may be visited. Poultry judging teams competing in the Annual Eastern and Inter-collegiate Contest are trained in this course.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor BANTA.

54. (II) POULTRY HOUSING AND SANITATION.—In this course are considered the biological factors related to the proper physical environment necessary for growth, health, and reproduction. Various systems of ventilation and methods of insulation are studied and demonstrated by models. Humidity, temperature, and condensation studies are made at the poultry plant with varying adjustments of ventilation devices. A study is made of modern equipment. Sanitation from the standpoint of disease prevention practices is also considered.
1 class hour; 1 2-hour laboratory period. Credit, 2.
1:00-2:50 Tu.; class hour by arrangement. Professor SANCTUARY.

75. (I) MARKETING POULTRY AND POULTRY PRODUCTS.—A study of the marketing requirements for eggs and poultry, with special emphasis being placed upon the grading laws and demands in the Northeastern area. The course covers the preparation of eggs and poultry to meet these demands through an understanding of the nutritional, genetic, and environmental factors affecting the production of eggs and market poultry. The course also covers the specialized field of egg and poultry markets, price factors, reports, and current trends. A class trip is made to the Springfield markets.
1 class hour; 1 2-hour laboratory period. Credit, 2.
10:00-10:50 Tu. W.; 3:00-4:50 M. Assistant Professor VONDELL.

76. (II) TURKEY PRODUCTION.—This course includes the production of ducks and geese but most of the time is given to the turkey industry; its importance, breeds, breeding, incubation, brooding, feeding, finishing, marketing, etc.

1 class hour; 1 2-hour laboratory period. Credit, 2.

10:00-10:50 F.; laboratory hours by arrangement. Professor JEFFREY.

Prerequisite, Poultry 25.

77. (I) POULTRY BREEDING.—The improvement of poultry by selection is developed through a study of the principles of heredity. Flock improvement, R.O.P., male progeny and pedigree systems of breeding are studied critically. Students participate in the selection of the breeders of the college flock, which includes among other factors a study of the pedigrees of each family, determination of body and egg characters, and the pedigreeing of the chicks.

2 class hours; 1 2-hour laboratory period. Credit, 3.

10:00-10:50 Tu. Th.; laboratory hours by arrangement

Professor JEFFREY.

78. (II) POULTRY FARM ORGANIZATION.—This course presupposes a completion of previous major poultry courses. It is designed to focus the contributions of all preceding poultry and supporting courses to the most effective possible organization of an actual production project. This is achieved by a sequence of problems, each necessitating a thorough factual knowledge of a particular industrial phase; while the integration of all, operating in conjunction, must fulfill the minimum standards established by analyses of large numbers of actual cases. A required trip, covering three or more days, will be made to representative commercial areas at a cost of about fifteen dollars per student.

1 class hour; 1 2-hour laboratory period. Credit, 2.

10:00-10:50 M.; 1:00-2:50 M. Assistant Professor BANTA.

81. (I) 82. (II) POULTRY PROBLEMS.—This course consists of individual problems chosen by the student under guidance of the department. The work is of an advanced nature, supplementing that of the regular poultry curriculum. Such projects as the vitamin requirements of laying hens, determination of kind and amount of ventilation to maintain dry litter, study of egg quality by means of albumen tests, etc., may be chosen by the student. Copy of project outline, indicating the number of credits, must be filed with the department and with the Dean at the opening of the semester. Two hours are required in the second semester. Two additional hours may be elected in either the first or second semester. Honor students may elect three hours each semester.

Credit, 2, 3, or 4.

Hours by arrangement. The DEPARTMENT.

PSYCHOLOGY

Professor NEET, Assistant Professor MEYER

26. (I) and (II) GENERAL PSYCHOLOGY.—This is an introductory course dealing with the nature, methods, basic facts, principles and theories of psychology with regard to the understanding and control of behavior. Topics considered include the nature and development of behavior, motivation, emotion, learning, perception, thinking, intelligence and personality.

3 class hours. Credit, 3.
Professor NEET and Assistant Professor MEYER.

51. (I) EXPERIMENTAL PSYCHOLOGY.—This course is designed to give an understanding of the problems, experimental methods, and research techniques in psychology. One of the aims of the course is the development of an experimental attitude concerning behavior as outlined in psychology.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; laboratory hours by arrangement.
Prerequisite, Psychology 26. Professor NEET.

55. (I) EDUCATIONAL PSYCHOLOGY.—This is a study of the psychological information, principles, and techniques fundamental to the educational process. Topics considered include native abilities, mental growth, social growth, individual differences, intelligence, interests, emotion, motivation, learning, and transfer of training.

3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor MEYER.
Prerequisite, Psychology 26.

61. (I) SOCIAL PSYCHOLOGY.—A study of the psychological bases of group behavior with a view toward a better understanding and control of one's roles in group life. The major topics considered are: history and methods, properties and dynamics of group behavior, phychological processes underlying individual and group social adjustments, and collective behavior following social crises.

3 class hours. Credit, 3.
2:00-2:50 M. W. F. Assistant Professor MEYER.
Prerequisite, Psychology 26.

72. (II) ADVANCED EXPERIMENTAL PSYCHOLOGY.—The literature, techniques, and apparatus of experimental psychology are considered in detail, and selected projects are carried out individually by the members of the class.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 Tu.; laboratory hours by arrangement. Mr. ——.
Prerequisite, Psychology 51.

82. (II) INDIVIDUAL INTELLIGENCE TESTING.—A study and evaluation of individual intelligence tests. The specialized abilities needed in

the use of the most important tests of this type are developed in the laboratory. These abilities are required of trained psychometrists.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

10:00-10:50 Tu.; laboratory hours by arrangement. Professor NEET.

Prerequisite, Psychology 26.

84. (II) ABNORMAL PSYCHOLOGY AND MENTAL HYGIENE.—A study of the causes, prevention, symptoms, and treatment of behavior abnormalities with a view toward better understanding and control of oneself. Special attention is given to the following: sensory and motor disorders, speech problems, memory losses and other disorders of association, emotional extremes, feeblemindedness, the neuroses and psychoses.

3 class hours. Credit, 3.

10:00-10:50 M. W. F. Professor NEET.

Prerequisite, Psychology 26.

86. (II) INDUSTRIAL PSYCHOLOGY.—The course aims to give understanding of the psychological principles and methods in employment, interviewing, training, management and motivation, promotion, accident prevention, fatigue, advertising propaganda, and selling.

3 class hours. Credit, 3.

9:00-9:50 M. W. F. Assistant Professor MEYER.

Prerequisite, Psychology 26.

88. (II) PSYCHOLOGY OF GUIDANCE.—A study of the psychological principles, techniques and tests necessary in guidance. Tests and scales used in measuring intelligence, interests, aptitudes and personality traits are studied and evaluated. Practice is given in administering and scoring tests, and in the use of other guidance procedures.

2 class hours; 1 2-hour laboratory period. Credit, 3.

9:00-9:50 Tu. Th.; laboratory hours by arrangement.

Prerequisite, Psychology 26. Assistant Professor MEYER.

89. (I) CONTEMPORARY PSYCHOLOGIES (1948-49).—A study of the history and present status of the schools of psychology with an evaluation of the various theories and principles of each as they relate to the fields of psychology and to problems of human behavior. The following schools are considered: structuralism, functionalism, Gestalt Psychology, behaviorism, purposivism, psycho-analysis, and topological psychology. Given in alternate years.

3 class hours. Credit, 3.

9:00-9:50 M. W. F. Professor NEET.

Prerequisite Psychology 26.

91. (I) CHILD AND ADOLESCENT PSYCHOLOGY (1947-48).—This course aims to develop an understanding of the behavior of the child from birth through adolescence. Psychological aspects of the following topics are considered; original nature, maturation and mental development, emotions, play, social behavior, language, speech defects, learning, problems of adolescence, juvenile delinquency, moral behavior, personality and mental hygiene. Nursery school observation and practice. Given in alternate years..

3 class hours. Credit, 3.

9:00-9:50 M. W. F. Professor NEET.

Prerequisite, Psychology 26.

92. (II) CLINICAL PSYCHOLOGY.—A study of the techniques and methods involved in the diagnosis and treatment of behavior disorders. Clinical testing, counselling, and psychotherapy are given consideration.

3 class hours. Credit, 3.

10:00-10:50 Tu. Th. S. Mr. ——.

Prerequisite, Psychology 84 or consent of the instructor.

95. (I) 96. (II) PROBLEMS IN PSYCHOLOGY.—For qualified seniors. The student will be allowed to do independent work and study on special problems or in certain fields of psychological interest. By arrangement with the members of the department.

Credit, 1.

Professor NEET and Assistant Professor MEYER.

PUBLIC HEALTH

See Bacteriology

SOCIOLOGY

Assistant Professor KORSON, Mr. PISANI

28. (I) and (II) ELEMENTS OF SOCIOLOGY.—An outline of the social order, and of the individual considered as a member of his various groups.

3 class hours. Credit, 3.

Assistant Professor KORSON and Mr. PISANI.

51. (I) URBAN SOCIOLOGY.—A comparative study of modern social conditions, social agencies, and methods of adjustment, with special reference to city environment. Characteristics of the population, urban ecology, and problems of adjustment in the fields of housing, health, education, and recreation.

3 class hours. Credit, 3.

2:00-2:50 Tu. Th., third hour by arrangement.

Assistant Professor KORSON.

Prerequisite, Sociology 28 or permission of instructor.

52. (II) Rural Sociology.—A study of rural society from the standpoint of its population, institutions, standards of living, and their relation to urban society.

3 class hours. Credit, 3.
Assistant Professor Korson.

53. (I) An Introductory Study of Cultural Anthropology.—A non-technical sociological study of man in the prehistoric periods.

3 class hours. Credit, 3.
Mr. Pisani.

Prerequisite, Sociology 28.

54. (() American Race Relations.—The social, economic, and political aspects of racial problems in the United States, with particular reference to the Negro and major ethnic groups. A consideration of population pressure as a cause of migratory movements. A rabbi, minister, and priest are invited to address the class, and visits are made to the respective churches. In addition, a visit to the African Methodist Episcopal church of Amherst is made.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor Korson.

57. (I) The Family.—The history and development of the customs of courtship and marriage from primitive society to the American family. The basic causes of changes and trends of the family are considered. The folkways and mores of marriage in other societies are also studied.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor Korson.

61. (I) Population Problems.—An analytical study of population trends and problems of the world; the origin, composition, growth, migration, and urbanization of the American population.

3 class hours. Credit, 3.
Mr. Pisani.

Prerequisite, Sociology 28.

75. (I) Problems of Social Reform.—A study of abuses affecting the home, recreation, business, industry, family welfare, public health, government, mental disease, and crime. The charitable and correctional institutions of Massachusetts as agencies of reform. Visits to Belchertown State Schools, Northampton State Hospital, and Northampton Superior Court are arranged, and specialists in their fields will be invited as speakers.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor Korson.

76. (II) Introduction to Social Welfare.—For senior majors and others who qualify. Contemporary problems of social concern: causes of poverty; methods of caring for adult and child dependents and defec-

tives. A consideration of public and private agency administration and techniques, and an examination of federal, state, and local community programs.

3 class hours. Credit, 3.

Assistant Professor KORSON.

Prerequisites, Sociology 28, 51, 75.

79. (I) 80. (II) SEMINAR.—Admission by permission of instructor. A study of the methods of research employed by sociologists. Students, under direction of the instructor, analyze and organize such sociological knowledge as they acquire through their own social service experience, and include all in a comprehensive report; projects must be approved in advance by the instructor. Credit, 3.

Hours by arrangement. Assistant Professor KORSON and Mr. PISANI.

82. (II) SOCIOLOGICAL THEORY.—An examination of the contributions of European and American writers who have concerned themselves with theories of the origin, growth, and development of human social organization.

3 class hours. Credit, 3.

Mr. PISANI.

Prerequisites, Sociology 28, 53.

SPANISH

See Foreign Languages

SPEECH

Professor RAND, Professor SIMPSON, Associate Professor GOLDBERG, Assistant Professor TROY, Assistant Profesor DUBOIS, Miss HORRIGAN, Mr. VARLEY, Dr. O'DONNELL, Mr. LANE, Mrs. WRIGHT

29. (I) 30. (II) PUBLIC SPEAKING.—This course is designed to give the student instruction and opportunity in oral self-expression. It includes both public speaking and literary interpretation.

1 class hour. Credit, 1.

The DEPARTMENT.

89. (I) DRAMATIC PRODUCTION.—This course offers instruction and practice in casting, directing, acting, make-up, lighting, and scenic design and construction.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

11:00-11:50 Tu.; 1:-2:50 Tu. Th.

Professor RAND and Assistant Professor ROBERTSON.

91. (I) EXTEMPORE SPEECH.—The theory and practice of business and professional speech. Registration limited.

3 class hours. Credit, 3.

11:00-11:50 M. W. F. Professor SIMPSON.

92. (II) FORMAL DISCUSSION.—Most of the semester is devoted to the persuasive speech; its organization and presentation. Students are given the opportunity to lead and to participate in discussion. Members of this class may become candidates for the Flint Contest.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor SIMPSON.

VETERINARY SCIENCE

Professor LENTZ

51. (I) VETERINARY HYGIENE.—The essentials of the health of animals and specific diseases of animals are considered.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor LENTZ.

75. (I) COMPARATIVE VETERINARY ANATOMY.—The structure of the horse is studied and the structures of other farm animals are compared with it.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor LENTZ.

76. (II) GENERAL VETERINARY PATHOLOGY.—A study of fundamental, general pathological conditions; inflammation, fever, etc., and application of principles of etiology, pathogenesis, and prophylaxis of communicable and non-communicable diseases of domesticated animals.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor LENTZ.

88. (II) AVIAN PATHOLOGY.—Consists of lectures devoted to principles of pathology, with specific application to avian diseases. Etiology, pathogenesis, and prophylaxis will be emphasized.

3 class hours. Credit, 3.
Hours by arrangement. Professor LENTZ.
Prerequisites, Bacteriology 31 and 52; Physiology 75 and 76.

WILDLIFE MANAGEMENT

See Forestry

ZOOLOGY

Assistant Professor WOODSIDE, Assistant Professor TRAVER,
Mr. BARTLETT, Mr. GADBOYS

1. (I) and (II) INTRODUCTORY ZOOLOGY.—(Constitutes one semester of the freshman course in biology). This course provides an introduction to the principles of biology, with special reference to the zoological aspects. The structure and activities of a representative vertebrate animal, the frog, are considered in detail and the knowledge thus gained is utilized in a comprehensive survey of the major groups of the animal kingdom.

Brief introductions are given to the principles of classification, nutrition, structure and functions of protoplasm, genetics, heredity, development, and evolution.
2 class hours; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Tu. Th. or 11:00-11:50 M. W.; 1:00-2:50 M. F. or 3:00-4:50 M. F. or 10:00-11:50 F., 3:00-4:50 W. or 3:00-4:50 Tu., 1:00-2:50 W.
Professor WOODSIDE.

25. (I) SURVEY OF THE ANIMAL KINGDOM.—The lectures deal briefly with the classification, morphology, distribution, ecology, life history, abundance, inter-relationships, and economic importance of each of the phyla of the animal kingdom, with emphasis on those phyla not discussed at length in the introductory course. The laboratory work is a continuation and expansion of the work done in the introductry course, and therefore the notebook prepared in that course is required for reference in Zoology 25. Whenever possible, living representatives of each of the phyla studied will be used.
2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 Tu. Mr. BARTLETT.
Prerequisite, Zoology 1.

50. (II) HISTOLOGY OF THE VERTEBRATES.—A study of the types of tissues found in the body of vertebrate animals, and of the organs in which these tissues occur. Tissues and organs of mammals are emphasized. A knowledge of comparative anatomy is advised.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Tu.; 1:00-2:50 Tu. Th. Assistant Professor TRAVER.

51. (I) and (II) MICROTECHNIQUE OF ANIMAL TISSUES.—The course comprises (1) a consideration of the principles and methods of microtechnique as applied to animal tissues, and (2) a series of practical exercises in the preparation of animal tissues for microscopic examination. Registration is limited to 12 students per semester. Consult instructor for section assignments.
2 2-hour laboratory periods. Credit, 2.
10:00-11:50 Tu., 1:00-2:50 W. Assistant Professor TRAVER.
Prerequisite, Zoology 1.

65. (I) 66. (II) COMPARATIVE VERTEBRATE ANATOMY.—This course is an attempt to give the student a thorough understanding of the anatomy of the principal organ systems of vertebrate animals. Animals studied in the laboratory are: protochordates, an elasmobranch fish; a caudate amphibian; a bird; and a mammal. Demonstration specimens of the other classes will be available for comparison of each of the organ systems studied. The course is arranged to run throughout the year, and is required of zoology majors. It is especially recommended for premedical students and students of historical geology and wildlife management.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Th.; 3:00-4:50 M. F. or Tu. Th. Mr. BARTLETT.
Prerequisite Zoology 1.

69. (I) 70. (II) ANIMAL PARASITOLOGY.—Zoology 69 deals with parasitic protozoa, flukes, and tapeworms; Zoology 70 with nematodes and their allies, leeches, ticks and mites, and a few other arthropods important as parasites or as vectors of parasites. Emphasis is placed upon the more important parasites of man and his domesticated animals: causative agents, life cycles, hosts, and modes of transmission, as well as morphology and phylogenetic relationships.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-11:50 M. F.; 10:00-10:50 W. Assistant Professor TRAVER.
Prerequisite, Zoology 1.

75. (I) 76. (II) VERTEBRATE EMBRYOLOGY.—The study of vertebrate embryology generally assumes a knowledge of comparative vertebrate anatomy. A thorough study is made of the development of representative animals, special emphasis being placed on the amphibian, bird, and mammal. General embryological principles are stressed throughout, and appropriate introductions are given to the hormones of reproduction and to experimental embryology. The work is arranged to run through the year and is required of students specializing in zoology and especially recommended for premedical students.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 Th.; 1:00-2:50 M. F. Assistant Professor WOODSIDE.
Prerequisite, Zoology 1.

80. (II) ORNITHOLOGY (1946-47).—Alternates with Course 82. Lectures consider the history of ornithology, classification, evolution, anatomy, physiology, nesting habits, flight, migration, distribution, and abundance of the birds of the world. Laboratory work consists of three parts: a study of the characteristics for field identification of the birds of New England from illustrations and museum specimens; a study of the anatomy of a typical bird, the pigeon; and field trips in the spring. The course is required of students in wildlife management and recreational leadership, and recommended for zoology majors. A knowledge of comparative anatomy will be helpful.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Th.; 3:00-4:50 M. F. Mr. BARTLETT.
Prerequisite, Zoology 1.

82. (II) VERTEBRATE ZOOLOGY (1945-46).—Alternates with Course 80. Lectures consider the classification, ecology, life history, distribution, abundance, and evolution of each of the classes of vertebrates of the world, with emphasis on North American forms. Laboratory work will deal primarily with the anatomy and classification of representatives of each of the classes. The course is required of students in wildlife management, and recommended for majors in zoology and recreational leadership. A knowledge of comparative anatomy will be helpful.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Tu.; 3:00-4:50 M. F. Mr. BARTLETT.
Prerequisite, Zoology 1.

85. (I) Classes of Arthropods Other Than Insects.—Arthropods are studied from the phylogenetic standpoint, with special reference to their relationship to the origin and evolution of insects.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 Tu.; 1:00-2:50 Tu.; 2:00-3:50 Th. Professor Crampton.
Prerequisite, Zoology 1.

86. (II) Fisheries Management.—Material will vary depending on the interests of students enrolled, but will include a review of ecology and typical life histories of all groups of economic importance not treated specifically in other courses. Fisheries work will be stressed and opportunity provided for field trips.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Mr. Bartlett.

91. (I) 92. (II) Special Problems in Zoology.—Qualified graduate students and seniors who have met departmental requirements for specialization in the field of zoology may arrange for work on a special problem in zoology.

Credit, 3.
The Department.

BIOLOGICAL FIELD STUDIES

Professor Vinal

51. (I) 52. (II) Biological Field Studies.—Course 51 is devoted to field studies with fall flowers, trees in winter, wood specimens, evergreens and the making of terraria. Course 52 deals with topography, glaciers, minerals, birds, and spring flowers with special emphasis on methods, skills, and techniques of leadership in nature education. These courses are required of students specializing in recreational leadership.

1 class hour; 2 2-hour field periods. Credit, 3.
Professor Vinal.

61. (I) 62. (II) Public Relations in Nature Recreation.—For juniors and seniors specializing in recreational leadership; others may elect by special arrangement with the instructor. A course in public contacts designed to bring to the attention of the student the natural history background with which one must be familiar if he is to succeed in public work. Community facilities, population, land use, climate, housing, good rural life in relation to community planning and nature recreation, are some of the factors to be considered. Each student will be expected to make a survey of his home town.

3 class hours. Credit, 3.
Professor Vinal.

71. (I) 72. (II) Advanced Biological Field Studies.—This course is devoted to field studies with cultivated plants, bog plants, the seabeach, salt water and fresh water aquaria, terraria, shell fish, amateur weather

bureau, conservation, camping education, the observation bee hive, gardening, school and community forests, animals in winter. Community service is expected.

1 class hour; 2 2-hour field periods. Credit, 3.
Professor VINAL.

73. (I) 74. (II) SPECIAL PROBLEMS IN NATURAL SCIENCE.—For juniors and seniors specializing in recreational leadership. It is expected that the problem will relate to the immediate career which the student has in view.

3 class hours. Credit, 3.
Hours by arrangement. Professor VINAL.

DEGREES CONFERRED 1946

June 10, 1946

RECIPIENTS OF HONORARY DEGREES

Fred Chester Kenney, Amherst, Massachusetts—*Master of Science*

Thorne Martin Carpenter, West Roxbury, Massachusetts—*Doctor of Science*

Harry Taylor Edwards, Chesterfield, Massachusetts—*Doctor of Science*

Nils Paul Larsen, Honolulu, T. H.—*Doctor of Science*

Stanley King, Amherst, Massachusetts—*Doctor of Laws*

James Thomas Nicholson, Washington, D. C.—Doctor of Laws

DOCTOR OF PHILOSOPHY (Ph.D.)

Karol Joseph Kucinski	Amherst

MASTER OF SCIENCE (M.S.)

Mason Stoddard Belden	Newington, Conn.
Carl Peter Ciosek	Chicopee
George Conrad Claver	Fountain City, Tenn.
Mary Magdalen Connors	Lee
Willard Kyte French	Worcester
Conrad Joseph Hemond, Jr.	Holyoke
Emil Ernest Keiler	West Newton
Raino Kullervo Lanson	Worcester
Katherine May Lawler	Greenfield
Benjamin Barker Mason	Amherst
Richard Warren Morton	Springfield
Carl Felix Nelson, Jr.	Gardner
Allan John O'Brien	Northampton
Charles Frank Oliver, Jr.	Amherst
Charles John Rogers	Medway
Wilfred Britton Shepardson	Athol
James Albert Sibson	Portland, Maine
Edmund Paul Sliz	Easthampton
Charlotte Frume Yoffa	Brookline

BACHELOR OF SCIENCE (B.S.)

Gerald Clifton Anderson	South Hadley
Marjorie Louise Andrew	Florence
Betsey Francis Atwood	Newtonville
Ruth Irma Barron	Brockton
Fernald Edward Bartlett	Rutland, Vt.
Dorothy Harrington Barrett	Amherst
Yoshiro Befu	Los Angeles, Calif.
Janet Campbell Bemis	Chicopee

Sylvia Richardson Blair	Amherst
John Robarts Blalock	Swampscott
Charles Edward Blanchard	N. Uxbridge
Frank George Brenna ‡	Milford
Margaret Mary Brown	North Adams
James William Callahan	Hadley
Barbara May Carr	Worcester
Shirley Annette Chaves	Swampscott
Faith Clapp	Leeds
Alton Brigham Cole	W. Medford
Margo Shorey Corson	New Bedford
Ethel Cosmos	Springfield
Charles Henry Courchene	Springfield
Barbara Elaine Cross	Granville Center
Marjorie Brett Day	Monterey
Frank Alfred DiTonno	Wakefield
Faith Hewes Dresser	Goshen
Charles Warren Dunham	Winthrop
Ruth Ina Edmonds	Pittsfield
George Entwisle	Brighton
Winifred Day Ewing	Springfield
Charlotte Frances Fleming	Holyoke
George Harold Flessas	Brookline
Joanne Ruth Freelander	Worcester
Esther Elaine Goldstein	Fall River
Jean Gould	Leominster
Wilma Graves	Marblehead
Janet Grayson	Amherst
Marcia Audrey Greenspan	Holyoke
Phyllis Marie Griffin	Swampscott
Claire Louise Healy	Buzzards Bay
Muriel Harriet Herbits	Brookline
Sylvia Knott Hobart	North Amherst
Janice Katherine Holland	Fairhaven
Dorothy Jane Hurlock	Marblehead
Faith Elizabeth Jillson	Gardner
Frances Dorothy Johnston	Spencer
Marion Elizabeth Johnston	Westfield
Jason Kirshen	Dorchester
Marguerite Elizabeth Krackhardt	West Berlin
Constance Marie LaChance	Fall River
Pauline Marguerite Lambert	Millbury
Edward Peter Larkin	Watertown
Edwin Harold Lamontagne, Jr.	Florence
William Billings Lecznar	Holyoke
Genevieve Katherine Lekarczyk	Holyoke
William Henry Lennon	Medford
Dorothy Louise Lent	Maynard
Natalie Lerer	Lowell
Jeanne Elizabeth Lindsey	Amherst
Frank Chester Mann	Wollaston
Marion Elizabeth McCarthy	Westfield
Georgia Alice McHugh	Methuen
Warren Henry McNaught *	Plymouth
Florence Gladys Melnick	So. Deerfield
Anne Patterson Merrill	Worcester
Charlotte Dexter Merrill	Walpole
Arlene Althea Metzler	Greenfield
Pauline Kinsley Morlock	Winchendon
Maryann Barbara Mroczkowski	New Bedford
Ruth Grace Murphy	Florence
Eleanor Ruth Nason	Woburn
Helen Mary NeJame	North Adams

Dorothea Mae Nixon	Westford
Margaret Katharine O'Hagerty	Adams
Helen Ann Padykula	Chicopee
Donald Howard Parker	West Roxbury
Gertrude Anne Pelissier	Hadley
Mary Katharine Petersen	S. Braintree
Irene Helen Powers	E. Leverett
Shirley Mae Rafkin	North Haven, Conn.
Ruth Eleanor Raison	Feeding Hills
Margaret Reinke	State Line
Laura May Resnick	Plymouth
Ruth Elizabeth Reynolds	Northampton
Roger George Richards	So. Hadley
Dorothy Helen Rieser	Holyoke
Edward Baker Risley	East Windsor Hill, Conn.
Eleanor Louise Rockwood	Gardner
Rita Anne Rossini	Holliston
Donald Eugene Rowley	Pittsfield
Eva Schiffer	Kew Gardens, N. Y.
Louise Esther Sharp	Worcester
Geraldine Marie Shea	Worcester
Helen Beaumont Shumway	Amherst
Emil John Slowinski, Jr.	Greenfield
Caroline Smith	W. Springfield
Donald Ladd Smith	Barre, Vt.
Saul Smoller	Chelsea
Elizabeth Stowell Southwick	No. Amherst
Shirley Denise Spring	Agawam
William Edward Stadler	Holyoke
William Gordon Stowe	Concord
Lillian June Strome	Swampscott
Charles William Styler	Jefferson
Robert Gerald Swanson	Cranston, R. I.
Anne Tilton	Weston
Hazel Grace Traquair	Norwood
Helen Margaret Tuttle	Warren
Phyllis Mary Tuttle	Holyoke
Anne Elizabeth Vanasse	Northampton
Harold Walba	Dorchester
Barbara Lucille Weissbrod	Holyoke
Ruth Babbitt White	Pittsfield
Carolyn Whitmore	Sunderland
Nancy Alice Woodward	Framingham Ct.
Lucie Elizabeth Zwisler	Holyoke
Violet Alice Zych	Chicopee

‡ as of class of 1938

* as of class of 1918

BACHELOR OF ARTS (B.A.)

Lois Ann Banister	Groton
Lois Davis Beurman	Dorchester
Ellen Cecilia Bowler	W. Springfield
Lorna Calvert	Amherst
Charlotte Chaletzky	Lynn
Daphne Dorothy Cullinan	Holyoke
Stanley Cykowski	Easthampton
Beatrice Joanne Decatur	Wayland
John Basil Delevoryas	Chicopee Falls
Cornelia Winifred Dorgan	Springfield
Ruth Mahlia Felstiner	Haverhill
Marjorie Louise Flint	Leicester

Joseph Frank	Mattapan
Gloria Edna Greenberg	Brighton
Marjorie Lois Hickman	Holyoke
Marie Catherine Honney	Northampton
Miriam Luetta Hosley	So. Deerfield
Mary Virginia Ireland	Manchester, Conn.
Gladys Christina Jensen	Chicopee
Dorothy Edna Johnson	Worcester
Chester Leon Kuralowicz	Willimansett
Florence Catherine Lawson	Acton Center
Dorothy Ann Lohmann	Holyoke
Jane Anne Londergan	Springfield
Sara Rebekah London	Brookline
William Raymond Manchester, Jr.	Oklahoma City, Okla.
Mary Elizabeth Martin	Amherst
Eleanor Dorothy Morton	Northampton
Frances Louise O'Shea	Northampton
Constance Abbot Scott	Watertown
Sara Rebecca Seltzer	Brookline
Barbara Eileen Smith	E. Springfield
Jean Roberta Spettigue	Leominster
Ruth Margaret Steele	Norwood
Mary Geraldine Suriner	Northampton
Helen Eaton Timson	Holliston
Ethel Bailey Warner	Amherst

BACHELOR OF LANDSCAPE ARCHITECTURE

Richard Bascom Hayward	Taunton
William B. S. Leong	San Francisco, Calif.

SUMMARY BY CLASSES

Class	Men	Women	Total
1947	153	121	274
1948	174	157	331
1949	343	170	513
1950	312	116	428
Specials	2	5	7
	984	569	1,553

STUDENT REGISTRATION

1947-48

CLASS OF 1947

Allen, Barton Bruce	Pelham	Q.T.V.
Amell, Alexander Benton	North Adams	Federal Circle E-6
Anderson, David W., Jr.	Worcester	Mt. Pleasant Inn
Anderson, Doris Lou	Amherst	Chi Omega
Anderson, Edward James	Greenbush	Kappa Sigma
Anderson, Warren Earl	Worcester	62 Mt. Pleasant
Andrews, Phyllis Barbara	Worcester	Sigma Kappa
Appel, Pearl	Lynn	Sigma Delta Tau
Archer, Jeanne Russell	Braintree	Sigma Kappa
Authier, Sally	Chicopee	Thatcher
Baker, Anne Margaret	Hanson	Kappa Alpha Theta
Baker, Elaine	Lynn	Sigma Delta Tau
Barenboim, Herman Saul	Lawrence	Alpha Epsilon Pi
Barrows, Helen Louise	Stafford Springs, Conn.	Thatcher Hall
Bass, Milton Ralph	Pittsfield	Alpha Epsilon Pi
Bass, Verne Madeline	North Adams	Thatcher Hall
Bateman, Carol	Worcester	Chi Omega
Batey, Thomas	Weston	58 South East St.
Beauregard, George	South Hadley Falls	Butterfield House
Becker, Edythe Ruth	Springfield	Sigma Delta Tau
Bedard, Marjorie Claire	West Springfield	Pi Beta Phi
Beebe, Cedrick Harding	Newton	800 North Pleasant St.
Beitzel, Barbara Ann	Mechanicsburg, Pa.	Thatcher Hall
Bernstein, Robert Leonard	Dorchester	449 North Pleasant St.
Bissonnette, Gloria Jean	Indian Orchard	Kappa Kappa Gamma
Black, Sidney Nelson	Brighton	Tau Epsilon Phi
Blake, Jack	Brookline	Alpha Epsilon Pi
Blauer, Maurice	Belmont	Federal Circle C-6
Block, James Anderson	Hadlyme, Conn.	800 North Pleasant St.
Bodendorf, Warren	Westfield	Federal Circle G-5
Bonazzoli, Gloria Louise	South Sudbury	Sigma Kappa
Bonvouloir, Marcelle Amanda	North Adams	Thatcher Hall
Booth, Richard Alfred	Holyoke	Federal Circle E-8
Bornstein, Joseph	Milton	Butterfield House
Bosworth, Russell Henry	Middleboro	Federal Circle B-1
Bouchard, Rachel Jacqueline	Fall River	Chi Omega
Bower, George	Boston	Lambda Chi Alpha
Bowles, Agnes Viola	Beverly	Adams House
Boyar, Beatrice	Everett	Lewis Hall
Boyd, William Henry	Brockton	179 Lincoln Ave.
Brahlit, Henry Laimond	Carlisle	Alpha Gamma Rho
Brown, Barbara	Mattapan	Sigma Delta Tau
Brutcher, Frederick	Mansfield	Phi Sigma Kappa
Buckley, Bernadette Frances	Lawrence	Lewis Hall
Bullock, Delight Ellen	Pittsfield	Kappa Kappa Gamma
Burick, Hazel	Englewood, N. J.	Thatcher Hall
Burke, Robert William	Woronoco	902 North Pleasant St.
Burroughs, Helen Elizabeth	West Acton	Thatcher Hall
Bush, David Graves	Westfield	Federal Circle E-7
Cande, Mary Alice	Dalton	Kappa Alpha Theta
Carlson, Evelyn Frances	Brockton	Lewis Hall

Charney, Sally	Mattapan	Lewis Hall
Chaves, Doris	Swampscott	Sigma Delta Tau
Ciszek, Stella Frances	Chicopee	Lewis Hall
Clark, William Eric	Lawrence	Federal Circle L-2
Coffin, Esther Mary	North Amherst	Pi Beta Phi
Colburn, June	Williamsburg	Sigma Kappa
Cole, Barbara	Amherst	786 North Pleasant St.
Cole, C. Vernon	Amherst	786 North Pleasant St.
Colorusso, Josephine Rita	Boston	Kappa Alpha Theta
Cooper, Eveleth Irving		Thatcher Hall
Cooper, Iris May	East Walpole	Kappa Alpha Theta
Cowing, Robert Harlan	West Springfield	Federal Circle E-3
Crone, Jean Frances	Shelburne Falls	Thatcher Hall
Crooker, Benjamin Charles, Jr.	Upton	Federal Circle K-5
Cummings, Jean	West Roxbury	Sigma Kappa
Damon, Richard Alan, Jr.	Lowell	Federal Circle H-6
Davies, Nancy	New Haven, Conn.	Thatcher Hall
Denis, Robert Bassett	Springfield	Kappa Sigma
Derby, Mayo Alden	Leominster	Lambda Chi Alpha
Derrig, Catherine Ann	Monson	Pi Beta Phi
Desrosier, Norman	Athol	Federal Circle G-7
Dewey, Robert Orth	Westfield	62 Mt. Pleasant
DeWitt, Gloria Wood	Granby	Kappa Kappa Gamma
Deyette, Joan	Northampton	Lewis Hall
Dobson, Warren Spencer	Norwood	Federal Circle K-1
Donohue, Michael Joseph	Holyoke	Phi Sigma Kappa
Drozdal, Henry	Hadley	Butterfield House
Duston, Frank Algar	Springfield	Lambda Chi Alpha
Duys, Gerrit, Jr	West Tisbury	Butterfield House
Ellen, Paul	Roxbury	Alpha Epsilon Pi
Enright, Maureen Anne	Springfield	Sigma Kappa
Estes, H. Lee	Milton	Q.T.V.
Everson, Robert Carroll	Amherst	73 High St.
Falvey, James Edward	Chicopee	374 North Pleasant St.
Fay, Robert	South Hadley	Butterfield House
Fedeli, Edwin John	Worcester	Federal Circle E-5
Fine, Shirley Louise	Springfield	Thatcher Hall
Fitzgerald, John Morgan	Springfield	Lambda Chi Alpha
Foley, George Paul	Worcester	Federal Circle D-6
Forest, Bernard Arthur	Arlington	Draper Hall
Foster, Cynthia Anne	Framingham Center	Kappa Kappa Gamma
Fowler, Patricia	Sunderland	Sunderland
Fox, Allan	Dracut	Phi Sigma Kappa
Freeman, Estelle Iola	Brookline	Sigma Delta Tau
Frost, Richard John	Wellesley Hills	Federal Circle A-4
Fuller, Ray Russell	Springfield	68 Merrick Ave., Holyoke
Fyfe, Charles	Worcester	46 Main St.
Gagne, Elizabeth Ann	Northampton	Thatcher Hall
Gardner, Dorothy Barbara	Southbridge	Sigma Kappa
Geiger, Gladys	Shelburne Falls	Sigma Kappa
Giannotti, John Dino	Fall River	86 Gray St.
Giles, Lester	West Springfield	Commonwealth Circle T-17
Glazier, Orman Hemenway	Leverett	Leverett
Glick, E. Roslyn	North Adams	Sigma Delta Tau
Glista, Walter	Bridgewater	Alpha Gamma Rho
Goddu, George Arthur	Holyoke	99 East Pleasant St.
Godek, Theodore	Chicopee	North College
Golart, Virginia Anne	Gloucester	Kappa Kappa Gamma
Goldstein, Shirley Hope	Pittsfield	Sigma Delta Tau
Golonka, Theodore Joseph	Turners Falls	Alpha Gamma Rho
Goring, Albert	Northampton	142 Crescent St., Northampton

Gove, Samuel Kimball	Walpole	Phi Sigma Kappa
Green, Irwin	Brookline	Drake Hotel
Green, Shirley Thelma	Chelsea	Sigma Delta Tau
Gross, Herbert H.	Sharon	Federal Circle G-4
Gross, Lydia Elizabeth	Northampton	67 Milton St., Northampton
Grout, Howard Edgar	Springfield	34 Main St.

Halkiotis, James George	Haverhill	394 North Pleasant St.
Hambly, Natalie Evelyn	West Bridgewater	Sigma Kappa
Hansen, Cecelia May	Granville	Thatcher Hall
Harcovitz, Olga Marion	Millis	Kappa Kappa Gamma
Harrington, Gloria Marie	Whitman	Kappa Alpha Theta
Hattin, Marjorie Ruth	North Scituate	388 North Pleasant St.
Hayes, Kerby Maxwell	Buzzards Bay	Theta Chi
Heyman, Annette Helen	Springfield	Sigma Delta Tau
Hilchey, John Duncan	Raymond, N. H.	Federal Circle G-3
Himes, Janet	Attleboro	Thatcher Hall
Hittinger, Annis	Belmont	Pi Beta Phi
Hollis, Steven	South Hadley Falls	Mt. Pleasant Inn
Holly, Dorothy Margaret	Pittsfield	Kappa Kappa Gamma
Holmes, Robert	Housatonic	Commonwealth Circle S-24
Hughes, John Thomas	Oak Bluffs	Theta Chi

Iampietro, Philip	Middleboro	Kappa Sigma
Irzyk, Arthur Stanley	Salem	Phi Sigma Kappa

Jackson, Eleanor Monroe	Amherst	Federal Circle L-6
Jacobs, Doris Pearson	Sterling Junction	Thatcher Hall
Jefferson, Muriel Fredericka	Springfield	Lewis Hall
Johansson, Warren Irving	Leominster	Federal Circle L-4

Kane, Thomas Joseph	Worcester	62 Mt. Pleasant
Kapinos, Emily Dorothy	Ludlow	Lewis Hall
Kaplan, George Robert	Brighton	178 North Pleasant St.
Karas, Arthur	Mattapan	418 North Pleasant St.
Karp, Robert Joseph	Springfield	Federal Circle M-3
Kavanaugh, Irene Mary	Amherst	98 Spring St.
Kelleher, Nancy Jeanne	Beverly	Chi Omega
Kendrick, Mary Irene	Charlemont	Thatcher Hall
Kettleman, Natalie	Revere	Thatcher Hall
Kimball, Richard	Amherst	Kappa Sigma
King, James Herbert, Jr.	Worcester	Fire Department
Klein, Robert Ernest	Frederick, Md.	Theta Chi
Kneeland, Raymond Harold	Northampton	Kappa Sigma
Kokoski, Joseph	Hadley	R. F. D. 3, Amherst
Kosciusko, Mitchell Fred	Auburn	Federal Circle E-2

Lamery, Lawrence Walter	Greenfield	43 Butterfield Terrace
Landon, Marcus Oliver	Gt. Barrington	62 Mt. Pleasant
Lawless, Lila Grace	Shelburne Falls	Thatcher Hall
Lee, M. Jean	Greenfield	315 Lincoln Ave.
Lee, M. Deane	Rowe	Butterfield House
Leen, Harold	New Bedford	175 State St., No. Amherst
Leonowicz, Rose Marie Anna	South Deerfield	Thatcher Hall
Levine, Morton Ashur	Watertown	Commonwealth Circle S-30
Libon, Bertram	Roxbury	Tau Epsilon Phi
Love, Nancy	Littleton	Sigma Kappa
Love, Robert George	Littleton	Commonwealth Circle S-6
Lundy, Janet Kehl	Northfield	Federal Circle G-6
Lundy, Richard Dorr	Springfield	Federal Circle G-6
Luzzio, Anthony Joseph	North Andover	242 Lincoln Ave.

Magrane, Mari-Elizabeth	Holyoke	Kappa Kappa Gamma
Malkiel, Julian	Brookline	Alpha Epsilon Pi
Malloy, Raymond	Northampton	19 Butler Pl., Northampton

Manning, Jean	Merrimac	Lewis Hall
Mannis, Phyllis Anne	Southbridge	Sigma Kappa
Marcus, Pauline Gloria	Brookline	Sigma Delta Tau
Martin, Doris Constance	Springfield	Kappa Kappa Gamma
Mascho, Fayette Clapp	Westhampton	Theta Chi
Masi, Joseph Annibal	Franklin	Kappa Sigma
Maugeri, Lurline	Wakefield	Thatcher Hall
McCormack, Ralph	East Boston	Commonwealth Circle S-14
McDonough, John Paul	Dorchester	Poultry Plant
Meirs, Elinor Louise	West Springfield	Sigma Kappa
Miller, Judith Carol	Allston	Sigma Delta Tau
Millman, George Harold	Mattapan	Federal Circle M-8
Minahan, Virginia	Lawrence	Chi Omega
Moore, Thomas Patrick	Holyoke	1475 Dwight St., Holyoke
Morton, Dorothy June	Hadley	158 Hartsbrooke Rd.
Morton, Lewis Bradford, Jr.	Plymouth	Kappa Sigma
Moser, Roy Edgar, Jr.	Amherst	Federal Circle B-4
Motyka, Alice Regina	Three Rivers	Thatcher Hall
Moulton, James Malcolm	Longmeadow	Lambda Chi Alpha
Mulvey, Glenn	Springfield	Commonwealth Circle S-10
Niedjela, Maxwell	Hadley	Phi Sigma Kappa
Noel, Patricia Anne	Sturbridge	Sigma Kappa
Noke, Theodore Anthony	Brighton	Q. T. V.
Ofstrock, Avis Harriet	Woods Hole	Sigma Delta Tau
O'Keefe, Constance	Melrose	Kappa Alpha Theta
Oleaga, Alice Pauline	Springfield	Chi Omega
O'Reilly, Mary Theresa	Brockton	Kappa Kappa Gamma
O'Shea, Robert	Northampton	Alpha Gamma Rho
Pacocha, Stanley	Easthampton	52 Glendale St., Easthampton
Papageorge, John	Northampton	16 Myrtle St., Northampton
Parker, Helene Anna	Lawrence	Lewis Hall
Parker, Jeannette Evelyn	West Bridgewater	Sigma Kappa
Parsons, Margaret	Marblehead	Kappa Alpha Theta
Pepka, Lillian Elizabeth	Webster	Lewis Hall
Peredina, William Peter	Norwood	Commonwealth Circle R-8
Piper, Marion Polly	Framingham	Kappa Kappa Gamma
Place, Robert Edward	Oxford	Federal Circle A-8
Podolak, Edwin Michael	Hadley	452 East St., Hadley
Politella, Dario	Lawrence	Federal Circle H-1
Pollard, John Kingsley	Northampton	Butterfield House
Powers, Anne Louise	Braintree	Sigma Kappa
Promisel, Irwin	Chelsea	Alpha Epsilon Pi
Pula, Fred John	South Hadley	North College
Pushee, Marjorie Wyman	Rockland	1147 North Pleasant St.
Rabaioli, Edward Joseph	Medway	Alpha Gamma Rho
Rachleff, Edwin Frank	Springfield	Tau Epsilon Phi
Radway, Robert	New London, Conn	271 Northampton Rd.
Rhodes, Robert	Whitman	Kappa Sigma
Richards, Charles Bradford	Arlington	20 Bridge St., Cushman
Riley, Janice Patricia	Haverhill	Lewis Hall
Ring, James Manix	North Wilmington	Phi Sigma Kappa
Rist, Donald Hammond	Amherst	Pelham Road
Ritter, Henry Fiske	Hardwick	Federal Circle L-3
Robbins, Irving	Mattapan	Commonwealth Circle T-10
Rogers, Doris Murray	Amherst	31 Chestnut St.
Rosene, Lois	Shrewsbury	Adams House
Rothery, Frederic Albert	Springfield	Kappa Sigma
Ruder, Louis, Jr.	Northampton	64 Belmont Ave., Northampton
Ryan, Robert I.	Amherst	Alpha Gamma Rho
Salinger, Arnold Clarke	Monson	47 Mt. Pleasant
Santin, Patrick Gildo	Beverly	Stockbridge Hall

Scannell, Barbara Alice	Springfield	Kappa Alpha Theta
Sheinberg, Hilda Blanche	Chelsea	Sigma Delta Tau
Sherman, Stanley Ralph	Hull	Butterfield House
Shukis, Constance Helen	Medway	Lewis Hall
Silber, Leo	Springfield	Tau Epsilon Phi
Smith, Geraldine Granger	Florence	Chi Omega
Smith, Gordon Paul	Amherst	472 North Pleasant St.
Smith, Lorian	Boston	Adams House
Smith, Robert Austin	Hadley	R. F. D. 166
Speer, Rosemary Lucia	Hampden	Sigma Kappa
Spencer, John LeBaron	Amherst	99 East Pleasant St.
Stead, Bernard LeRoy	Lynn	Federal Circle H-5
Stebbins, Mary Winifred	Deerfield	Thatcher Hall
Steeves, Taylor Armstrong	East Weymouth	Inwood
Stephens, Constance Elizabeth	Cambridge	Chi Omega
Storella, John Alfonse	East Boston	Commonwealth Circle R-24
Strazdas, Veda	North Andover	Pi Beta Phi
Swasey, Paul Edward	Worcester	Lambda Chi Alpha
Swenson, Jean Mae	East Longmeadow	Sigma Kappa
Symonds, Richard Jackson	Amherst	Federal Circle E-1

Thatcher, Constance	Athol	Pi Beta Phi
Thomas, Sophie	Southbridge	Adams House
Tibbetts, Frederick Rogers	Winchendon	Theta Chi
Topol, Sidney	Dorchester	Alpha Epsilon Pi
Trowbridge, Gordon Prescott, Jr.	Northampton	Federal Circle E-4
Tucker, William Joseph	Pittsfield	Federal Circle M-6

Vanasse, Norman Alfred	Northampton	Federal Circle L-5
Verrilli, Rocco Anthony	Harrison, N. Y.	Phi Sigma Kappa

Warner, Charles Newton	Sunderland	Q. T. V.
Warner, Elmer Roger	Sunderland	Theta Chi
Weston, John	Framingham Centre	North College
White, Frances Virginia	Upper Darby, Pa.	Kappa Kappa Gamma
Whitney, Barbara Ruth	Westfield	Sigma Kappa
Willemain, Bernard Maurice	Holyoke	Federal Circle K-2
Winer, Jacqueline Diana	Springfield	Sigma Delta Tau
Winthrop, Justin	Lynn	Commonwealth Circle T-10
Wood, Phoebe Ann	Amherst	75 North East St.
Woodward, Margaret Jean	Northboro	Kappa Kappa Gamma
Worthley, Elmer George	Boston	Commonwealth Circle S-19
Woytonik, Lucy May	Easthampton	Sigma Kappa

Zacks, Adrienne Charlotte	Brookline	Sigma Delta Tau
Zalkan, Ralph	Peabody	41 Cottage St.

CLASS OF 1948

Abrahams, Allan	Dorchester	Tau Epsilon Phi
Allen, James Warren	Brewster	Butterfield House
Archibald, Frances Sanderson	Newton Highlands	Lewis Hall
Army, Thomas James	Worcester	Alpha Gamma Rho
Ash, Romaine	South Swansea	Lewis Hall
Avery, Mary Elizabeth	Colrain	Adams House

Bailey, Charles Winthrope, Jr.	New Bedford	Sigma Phi Epsilon
Baines, Pauline	New Bedford	Thatcher Hall
Baker, Marilyn Margaret	Southbridge	Lewis Hall
Baldwin, Priscilla Winslow	Harwichport	Kappa Kappa Gamma
Balise, Raymond Henry	Leeds	77 Prospect St., Northampton
Barsky, Louis	Roxbury	Tau Epsilon Phi
Bates, Harriet Osborn	Carlisle	Thatcher Hall
Bayles, Jean	South Dennis	Kappa Kappa Gamma
Bazol, Judith Rachael	Brookline	Lewis Hall
Better, Shirley Elizabeth	Peabody	Lewis Hall

Biletsky, Miriam	Mattapan	Thatcher Hall
Blakeslee, Lucille Frances	Brattleboro, Vt.	Lewis Hall
Bliss, Thomas Kent, Jr.	Attleboro	Federal Circle J-4
Bloniarz, Josephine	Adams	Thatcher Hall
Boski, Virginia Kathryn	Northampton	Thatcher Hall
Boy, Wallace Herrin	Holyoke	Mt. Pleasant
Brennan, Donald James	Dalton	Theta Chi
Brissett, R. Louise	Holyoke	328 Lincoln Avenue
Broderick, Donald Clinton	Lynn	Draper Hall
Brouillet, Barbara Ann	Holyoke	Thatcher Hall
Brown, Barbara Adele	Ridgewood, N. J.	Lewis Hall
Brown, John Leland	Monson	Federal Circle D-5
Brunell, Eunice June	Worcester	Lewis Hall
Brunner, Phyllis Eileen	Cranbury, N. J.	Lewis Hall
Buczoki, Lillian Dorothy	Ludlow	Lewis Hall
Burgess, Daniel Fred	Brockton	Sigma Phi Epsilon
Butler, George Daniel, Jr.	Leonia, N. J.	Alpha Gamma Rho
Butler, Robert Kenneth	Worcester	Lambda Chi Alpha
Cadorette, John Warren	Plymouth	Q. T. V.
Cady, Glenna Gibbs	Westfield	Sigma Kappa
Caird, Martha Jean	Braintree	Lewis Hall
Campbell, Charles Alexander, Jr.	Springfield	Kappa Sigma
Campbell, Raymond	Dorchester	Federal Circle J-1
Card, Ramona	Holbrook	Adams House
Carey, Janet Elizabeth	Williamstown	Thatcher Hall
Carey, Shirley Jude	Holyoke	Lewis Hall
Chabot, Edward Wilfred	Greenfield	8 Beech St., Greenfield
Chapman, Edithe Paulette	Winchester	Pi Beta Phi
Chase, George Albert	Foxboro	Theta Chi
Chase, Maribeth	Holliston	Thatcher Hall
Chatel, Annella Card	Amherst	Federal Circle J-3
Clancy, Patricia Ann	Springfield	Kappa Kappa Gamma
Cohen, George	Dorchester	449 North Pleasant St.
Cole, Philip Hillier	Westfield	Alpha Gamma Rho
Commo, Claire Margaret	Auburn	Chi Omega
Cook, Ruth Lucille	Springfield	Thatcher Hall
Cooley, Barbara Jane	East Longmeadow	Lewis Hall
Cooper, Barbara	West Yarmouth	Thatcher Hall
Cotton, Priscilla Helen	Haverhill	Pi Beta Phi
Couture, Jacqueline Lorraine	Becket	Thatcher Hall
Critchett, Edward William	Amherst	46 Hillcrest Place
Crosby, John Francis	Greenfield	Butterfield House
Crotty, Ann Marie	Worcester	328 Lincoln Avenue
Curtis, Roberta Lillian	Worcester	Lewis Hall
Cushman, Phyllis Ann	Cambridge	Thatcher Hall
Cynarski, Jeanneatte	Adams	Pi Beta Phi
Czarnecki, Stephen Walter	Easthampton	Federal Circle J-2
Daggett, Stanley Marshall	Auburn	Q.T.V.
Daley, Barbara Ann	Natick	Lewis Hall
Darling, Leroy Edson	Stafford Springs, Conn.	179 Lincoln Avenue
Davenport, John Robinson	Shelburne Falls	Kappa Sigma
Davidson, Sherwood	Holyoke	Alpha Epsilon Pi
Day, Marion Gloria	Northboro	Chi Omega
Dayton, Edith Rosemary	Amherst	Belchertown Road
Deltour, Robert Joseph	Monson	Kappa Sigma
Derosier, Gerald Arthur	North Adams	56 Cowls Rd., No. Amherst
Dillon, Robert	Ware	382 Mt. Pleasant St.
Dinn, Walter	Holyoke	9 Arlington Ave., Holyoke
Dinsmore, James Lockett	Greenfield	266 Chapman St., Greenfield
Doran, Eleanor	East Walpole	148 Lincoln Avenue
Doten, George William	Plymouth	Kappa Sigma
Dover, Edith Gurney	Winchester	Pi Beta Phi
Downing, Evelyn	Springfield	Lewis Hall

DRINKWATER, WILLIAM	Needham	Alpha Gamma Rho
DUFFY, JANE	Springfield	Thatcher Hall
DUQUETTE, ALFRED	New Bedford	414 North Pleasant St.
DWYER, JOHN LAWRENCE	Pittsfield	111 Amity St.

EASLAND, LAURA	Rocky Hill, Conn.	Thatcher Hall
ELLIOT, PRISCILLA HOWE	Buzzards Bay	Adams House
ENGLISH, JAMES	Brockton	North College
EPSTEIN, GEORGE	Mattapan	Tau Epsilon Phi
EPSTEIN, ROBERT	Cambridge	Butterfield House
EVANS, JANE PATRICIA	Sunderland	North Sunderland Road

FALBY, CHESTER EDWARD	West Berlin	Butterfield House
FARINHA, EDMUND	Fall River	394 North Pleasant St.
FEARNLEY, GEORGE LYLE, JR.	Amherst	Federal Circle J-5
FEIN, ROBERT EDWARD	Springfield	Tau Epsilon Phi
FELTON, CAROLYN JEAN	Lenox	Lewis Hall
FLINT, MARTHA MARIA	East Mansfield	Lewis Hall
FOERSTER, ELVA MARIE	Springfield	Lewis Hall
FOWLER, DONALD	Winthrop	Sunderland
FRENETTE, ESTELLE MARIE	Holyoke	Thatcher Hall
FRIEDMAN, MISCHA ELLIOT	Worcester	Alpha Epsilon Pi
FRIEDMAN, PAULA ISABELLE	Worcester	Thatcher Hall
FULLER, JEAN KIDSTON	Wellesley Hills	68 Merrick Ave., Holyoke
FULLER, MARGARITA	Cincinnati, Ohio	Adams House
FULTON, JAMES WILLIAM	Amherst	608 South Pleasant St.

GALUSHA, ELINOR GERTRUDE	Granby	Lewis Hall
GARBUTT, JOHN RALPH	Worcester	27 Woodside Ave.
GAYLORD, WILLIAM HENRY, JR.	South Hadley	Lambda Chi Alpha
GELLER, JEROME HERBERT	Pittsfield	Tau Epsilon Phi
GERBER, BETTY	Springfield	Sigma Delta Tau
GILBERTSON, ELIZABETH REID	Easthampton	Chi Omega
GILMAN, RALPH GLOVER, JR.	Greenfield	Phi Sigma Kappa
GINGRAS, WARREN	Turners Falls	449 North Pleasant St.
GLASER, DONALD WALTER	Bronxville, New York	Kappa Sigma
GLASS, SAMUEL	Roxbury	Alpha Epsilon Pi
GLENDON, ROBERT	Winchester	Commonwealth Circle T-3
GOBBI, FRANCES AMELIA	Springfield	Thatcher Hall
GOLDMAN, MELVIN NORMAN	Lawrence	Alpha Epsilon Pi
GOOD, WILLIAM JOSEPH, JR.	Randolph	269 North Pleasant St.
GOODALL, BETTY ANN	Cotuit	Pi Beta Phi
GOODRICH, PHYLLIS ELAINE	Pittsfield	Pi Beta Phi
GOTTESMAN, HERMAN BERNARD	New York, N. Y.	Commonwealth Circle
GOTZ, ELEANOR	Chelsea	Lewis Hall
GRAYSON, MARGARET ANN	Norwalk, Conn.	Thatcher Hall
GREENBERG, HAROLD LESTER	Dorchester	382 North Pleasant St.
GREENBUSH, ISABEL FRANCES	Adams	Thatcher Hall
GUERTIN, LORRAINE MAE	Southbridge	Kappa Kappa Gamma
GUYOTT, FREDERICK	Amherst	Federal Circle A-6

HAMLIN, MARJORIE	Amherst	Thatcher Hall
HANDLIN, ELAINE MARIAN	Chelsea	Lewis Hall
HAWKES, SHIRLEY MARGARITE	Georgetown	Thatcher Hall
HAYES, ELIZABETH	Amherst	Pomeroy Lane
HEALY, FLORENCE DOROTHY	West Springfield	Chi Omega
HEFFRON, ANNE MARY	Holyoke	Thatcher Hall
HENKEN, ERNEST MARVIN	Everett	25 Nutting Ave.
HERRMANN, RUTH LILLIAN	Easthampton	Thatcher Hall
HIBBARD, EMERSON	North Hadley	30 North Hadley Road
HILL, MARY THERESE	Springfield	Lewis Hall
HINSLEY, ELEANOR JEAN	Worcester	Adams House
HONKONEN, MAIJA ANNABELL	Fitchburg	Kappa Alpha Theta
HORGAN, EVERETT FRANCIS	Belmont	60 Main St.
HORWITZ, LEONARD JAY	Brookline	Commonwealth Circle S-25

Hosmer, William	Westfield	Theta Chi
Houran, Phyllis Lucille	Ashburnham	Pi Beta Phi
Howe, Milton Albert, Jr.	Pittsfield	Federal Circle J-8
Howes, William Arthur	Dalton	Lambda Chi Alpha
Hyndman, Barbara	Springfield	Thatcher Hall
Jackson, David Francis, Jr.	Mansfield	Commonwealth Circle S-5
Jackson, Henry Harvey, Jr.	Attleboro	Federal Circle L-6
Jacobs, Donald Stanley	Dorchester	Alpha Epsilon Pi
Jaffe, Edith	Dorchester	Lewis Hall
Jakeman, Brooks	Larchmont, N. Y.	Lambda Chi Alpha
Jameson, Helen Ann	Monson	Thatcher Hall
Jasinski, Edwin Conrad	Chicopee	North College
Jones, Lillian Ruth	Ashland	Sigma Kappa
Jones, Nelson Vayo	Springfield	30 North Hadley Rd.
Jones, Robert William	Springfield	406 North Pleasant St.
Julian, Virginia Louise	Amherst	40 Farview Way
Kagan, Thelma	Brookline	Thatcher Hall
Kaplan, Elliot	Winthrop	Alpha Epsilon Pi
Kaufman, Jewel	Worcester	Sigma Delta Tau
Keefe, James Hammerle	Palmer	Alpha Gamma Rho
Kelley, Ida Marie	Framingham	Thatcher Hall
Kelly, John William	Northampton	65 Hatfield St., Northampton
Kennedy, Doris May	Holyoke	315 Lincoln Ave.
Keough, Anne Margaret	Holyoke	Chi Omega
Keough, John	Holyoke	95 Pearl St., Holyoke
King, Robert Howard	Ashfield	Box 115, Ashfield
Klein, Max	New Bedford	Tau Epsilon Phi
Kobak, Elizabeth Louise	Fairhaven	Thatcher Hall
Kolovson, Maurice Gabriel	Brookline	Butterfield House
Krikorian, Lillian	Methuen	Thatcher Hall
Kronick, David	North Adams	418 North Pleasant St.
LaFountain, Robert	Northampton	86 High St., Northampton
Laipson, Myron Ralph	Worcester	49 Main St.
Laliberte, James Joseph	Holyoke	Phi Sigma Kappa
Lambert, John Edward	Amherst	71 South Prospect St.
Lanagan, Robert James	Spencer	Commonwealth Circle S-5
Lane, Paul Andrew	Mansfield	Commonwealth Circle S-31
Lapides, Miriam	Greenfield	Sigma Delta Tau
LaRochelle, John Hart	Chicopee Falls	Kappa Sigma
LaSalle, Lois Marilyn	North Hadley	Riverdrive, North Hadley
Leland, David Frederick	Amherst	174 Sunset Ave.
Leonard, Adeline	Dorchester	Thatcher Hall
Litz, William Ernest, Jr.	Monson	Federal Circle J-7
Lucey, William Edward	Springfield	Phi Sigma Kappa
Ludeman, John	Denton, Texas	5 Churchill St.
Lynch, Robert Edmund	Winthrop	Theta Chi
Magiopoulos, Catherine	Springfield	Lewis Hall
Mangum, Constance	Holyoke	Kappa Alpha Theta
Mann, Anita Evelyn	Norfolk	Lewis Hall
Marien, Jacqueline Gladys	Springfield	Kappa Kappa Gamma
Markuson, M. John, Jr.	Amherst	309 East Pleasant St.
Marten, Rose-Marie Alice	Willimansett	Lewis Hall
Martin, John	Adams	Pokeberry Ridge
Martinson, Elmer	Holyoke	17 Allyn St., Holyoke
Mastalerz, John	Three Rivers	Theta Chi
Maturniak, George	Amherst	84 Eames Ave.
Matthews, John Joseph	Medford	Q.T.V.
McAfee, M. Martha	Northfield	Adams House
McCarthy, Daniel James	North Andover	Commonwealth Circle S-9
McCarthy, Daniel Jerome	Westfield	Lambda Chi Alpha
McCutcheon, Roger David	South Deerfield	Theta Chi

McKinstry, Mary Winifred	Chicopee Falls	Thatcher Hall
McNally, Alice Friel	Holyoke	Chi Omega
Melahouris, Theodora Basil	Boston	Lewis Hall
Mesnick, Evelyn	Gloucester	Lewis Hall
Mientka, Walter Eugene	Amherst	414 North Pleasant St.
Miller, Mary Ellen	Springfield	Kappa Alpha Theta
Milliken, Horace Newton	Dedham	Theta Chi
Moir, Lorane Margaret	North Adams	Pi Beta Phi
Moldaw, Raqhel Isa	Mattapan	Sigma Delta Tau
Moore, Donald	Arlington	Alpha Gamma Rho
Mount, Robert Frank	Longmeadow	North College
Muldoon, Alfred	Quincy	Q.T.V.
Muri, Richard Louis	Framingham	Lambda Chi Alpha
Murphy, Francis Joseph	Gardner	Lambda Chi Alpha
Murphy, John	Lynn	Commonwealth Circle S-34
Nahlovsky, Barbara Marianne	Springfield	Chi Omega
Najarian, Haig	Millis	49 South Pleasant St.
Needham, William Henry	Westfield	308 North Pleasant St.
Nelson, Andrew W., Jr.	Quincy	Phi Sigma Kappa
Nickerson, Norton Hart, Jr.	South Dennis	East Experiment Station
Niknejad, Ismail	Resht, Iran	179 Lincoln Ave.
Northup, Alice Carolyn	Williamstown	Lewis Hall
Norton, Richard	Norwood	Federal Circle J-6
O'Neill, Mary Elizabeth	Northampton	Thatcher Hall
Orlandella, Teresa Marie	Boston	Thatcher Hall
O'Shea, Daniel Francis	Hyde Park	Kappa Sigma
Palmer, C. Elinor	Springfield	Homestead
Pease, Robert Dwight	Amherst	Theta Chi
Peck, Margaret Ella	Shelburne	Lewis Hall
Perkin, Maynard Moore	Wenham	Commonwealth Circle R-34
Pierce, Robert Edwin	South Hadley Falls	Butterfield House
Powers, John	Braintree	French Hall
Preble, Melvin Sylvester	Farmington, Me.	Federal Circle B-6
Price, Samuel Edwin	Wantagh, N. Y.	Phi Sigma Kappa
Quirk, Mary	Springfield	Lewis Hall
Rabinowitz, Janet	New Haven, Conn.	Lewis Hall
Randazzo, Anthony James	Lawrence	81 McClellan St.
Ransom, Lois Marie	Springfield	Thatcher Hall
Raphael, Ruth Regine	Worcester	Sigma Delta Tau
Ratner, Eugene Lloyd	Cambridge	Tau Epsilon Pi
Rheaume, Jeanne Cecile	Holyoke	Chi Omega
Richard, Pauline Emma	Southbridge	Adams House
Ridley, Alden Dary	Thompsonville, Conn.	27 South Prospect St.
Robbins, Carroll Francis	Amherst	Federal Circle G-8
Roberson, Richard Charles	Leominster	Lambda Chi Alpha
Roberts, Jean Alice	Springfield	Lewis Hall
Rockey, Charles, Jr.	Easthampton	382 North Pleasant St.
Romano, Antonetta Ella	Springfield	Thateher Hall
Rose, John	Haverhill	Federal Circle C-5
Ross, Wayne Hathaway	Brookline	Commonwealth Circle S-7
Ruggles, Almon Orcutt	Brookfield	Theta Chi
Rumminger, Alfred	Leeds	135 Park St., Easthampton
Rumminger, Herbert	Leeds	23 Center St., Leeds
Russell, Ruth Lois	Easthampton	Lewis Hall
St. Palley, Theodore Julius	Pittsfield	Lambda Chi Alpha
Salsman, Shirley	Ashland	Thatcher Hall
Savino, Leslie Vincent	Northampton	Federal Circle C-7
Scalingi, Albert	Somerville	Kappa Sigma
Scheuneman, Maydee Rahm	Leominster	Lewis Hall
Schulze, John	Chesterfield	259 Lincoln Ave.

Secor, David	Wilbraham	Mt. Pleasant Inn
Sedgwick, Luella Doris	Lenox	Thatcher Hall
Segel, Joseph Norman	Newton	Commonwealth Circle R-17
Sellew, Helen	Natick	Thatcher Hall
Semon, Jean Patricia	Auburn	Adams House
Shapiro, Harvey Seymour	Chelsea	417 North Pleasant St.
Shea, Ruth Cullen	Springfield	Kappa Kappa Gamma
Shepard, Herbert	Warren	15 Allen St.
Shippee, Barbara June	Shelburne Falls	Thatcher Hall
Shoenberg, Z. Janet	Clinton	Lewis Hall
Shub, Esther	Springfield	Sigma Delta Tau
Siagel, Frances	Newton Center	Adams House
Sigafus, Roy Edward	Amherst	Federal Circle B-2
Simmons, Beryl	Amesbury	Lewis Hall
Simon, Edward Harvey	Lawrence	Alpha Epsilon Pi
Simon, Hope Anita	Roxbury	409 North Pleasant St.
Simon, Sheldon Sumner	Roxbury	Butterfield House
Sizer, Ann Louise	Holyoke	Thatcher Hall
Smith, Edward Merrill	Marblehead	Butterfield House
Smith, Paul	Northampton	Butterfield House
Smith, Rachel	Springfield	Thatcher Hall
Solomon, Sidney	Worcester	Alpha Epsilon Pi
Sparr, Bertram Irving	Brookline	Federal Circle M-7
Spencer, Joyce	Belchertown	Thatcher Hall
Spiegel, Samuel	Dorchester	Commonwealth Circle R-9
Sprague, Edward Dubois	Lynn	Butterfield House
Stebbins, Charles Henry	Deerfield	Theta Chi
Stegner, Barbara Jane	Brimfield	Lewis Hall
Steliga, Helen May	Northampton	Thatcher Hall
Sternberg, Harriet Elaine	Greenfield	Lewis Hall
Stetson, Lois Evelyn	Heath	Lewis Hall
Stevens, Calvin	Cummington	Leverett
Stevens, Robert	Arlington	Commonwealth Circle R-22
Stewart, M. Elaine	Winthrop	Lewis Hall
Stowe, Howard Denison	Griswoldville	Theta Chi
Summarell, Rufus Russell	Amherst	30 McClellan St.
Supovitz, Muriel	Roxbury	Lewis Hall
Sutton, Barbara	Amherst	165 College St.
Symonds, Helen	Melrose	Thatcher Hall
Szetela, Edward Robert	Holyoke	Phi Sigma Kappa
Tanguay, Pauline Ann	Springfield	Kappa Kappa Gamma
Tarlow, Thelma Ruth	Gloucester	Lewis Hall
Tauber, Walter	Springfield	Commonwealth Circle R-14
Taylor, Gordon Alan	Florence	Butterfield House
Terry, Marjorie Myra	Fairhaven	Chi Omega
Tolman, Betty Lee	Springfield	Thatcher Hall
Trespasz, Walter	Chicopee	Kappa Sigma
Trott, Melba Constance	Ashland	Thatcher Hall
Tyler, Georgie Maxine	Pittsfield	388 North Pleasant St.
Vanderpol, Adriana Jeannette	Fairhaven	Kappa Alpha Theta
Van Meter, Marcia	North Amherst	Chi Omega
Waite, Joanna	Stoneham	Kappa Alpha Theta
Walker, John Olin	Merrimac	Stockbridge Hall
Walker, Marcia Rosalie	Southbridge	Thatcher Hall
Warden, Alan Satterlee	Newark, N. J.	Theta Chi
Warner, Elizabeth Anne	Shelburne Falls	Lewis Hall
Weretelnyk, Joseph	Watertown	394 North Pleasant St.
White, Arthur	Worcester	Kappa Sigma
White, Harold Bancroft, Jr.	Upper Darby, Pa.	Federal Circle K-6
White, Hazel Isabelle	Winthrop	Thatcher Hall
Williams, Richard Arnold	White Plains, N. Y.	Alpha Gamma Rho

Winstanley, Nathan	Allston	Draper Hall
Winston, Paul Wolf	West Springfield	Lambda Chi Alpha
Winthrop, Harold	Brookline	417 North Pleasant St.
Wolfe, Barbara Lois	Jamaica Plain	Lewis Hall
Wolkowich, Barbara Doris	Worcester	Sigma Delta Tau
Wood, Coolidge Whitman	Northampton	Butterfield House
Wysocki, Alice Pauline	Amherst	911 North Pleasant St.
Yetman, George Elliott	South Weymouth	French Hall
Zuccaro, Rudolph Robert	West Somerville	Commonwealth Circle R-2

CLASS OF 1949

Abrams, Lois	Holyoke	Thatcher Hall
Abramson, Doris Elizabeth	Amherst	34 Spring St.
Adams, Henry	Amherst	Montague Road
Aldrich, Mary Eileen	Springfield	Lewis Hall
Alger, Mary Ann	Middleboro	Thatcher Hall
Alkon, Alvin Fred	Roxbury	Alpha Epsilon Pi
Allison, Martha Jean	Wellesley Hills	Lewis Hall
Altsher, Murray Irwin	Mattapan	Butterfield House
Anderson, Cleo Marie	Amherst	264 North Pleasant St.
Anderson, William Wheeler	Concord	Federal Circle F-8
Arons, Marjorie Elaine	Winthrop	Thatcher Hall
Babbitt, John Isaac	South Westport	Kappa Sigma
Balise, David Bonneville	Northampton	Draper Hall
Ballou, Henry Warren	Holyoke	Phi Sigma Kappa
Barr, Charles Everett	Natick	274 North Pleasant St.
Barrett, Warren Payson	Belchertown	Maple St., Belchertown
Barrows, Elmer Ellsworth, Jr.	Worcester	Commonwealth Circle T-4
Barrus, Donald Sidney, Jr.	Springfield	Butterfield House
Barry, Barbara Anne	Acton	Lewis Hall
Bartlett, Mannette May	West Springfield	Lewis Hall
Bass, Marion Ruth	North Adams	Thatcher Hall
Bean, Barbara Annie	Florence	M.S.C. Farmhouse
Beauregard, Wilfred	Ware	North College
Beck, Martha	Springfield	Lewis Hall
Beebe, Ruth May	Haydenville	Haydenville
Bemis, Ernest	West Bridgewater	201 East Pleasant St.
Bennett, Bernard	Springfield	Commonwealth Circle T-2
Berdahowski, Stanley Francis	Westfield	Theta Chi
Bernstein, Paul William	Springfield	25 Nutting Ave.
Bertram, Robert Edmund	Salem	Draper Hall
Best, Richard Higham	New Bedford	Federal Circle D-4
Betterman, Jack David	Dorchester	Butterfield House
Bevins, Robert	Salem	Butterfield House
Beyer, Arthur Henry	Springfield	Kappa Sigma
Bilsky, Erwin Symour	Longmeadow	25 Nutting Ave.
Blake, Edward	Greenfield	9 Forest Ave., Greenfield
Blank, Leatrice	Dorchester	Lewis Hall
Blomquist, Donald Ernest	Gardner	Sigma Phi Epsilon
Blumenthal, Florence Irene	Allston	Lewis Hall
Bock, Warren Maxwell	Amherst	Federal Circle A-1
Boddy, Ronald Dean	Eastham	Theta Chi
Bodurtha, James Norton	Southampton	Butterfield House
Boerner, Elizabeth Katherine	Ware	Thatcher Hall
Bolles, Sally Lyman	Woronoco	Lewis Hall
Bonneville, Harold	Greenfield	446 Bernardston Rd, Greenfld
Bourdeau, Edward Joseph	Turners Falls	Commonwealth Circle S-3
Bowen, Chester Fred	Ipswich	Mt. Pleasant
Bowman, Nancy Lee	Springfield	Thatcher Hall
Boyd, Lindsay	Holyoke	Federal Circle C-8
Braman, Shirley Evelyn	Southbridge	Lewis Hall

Brenner, Carl	Peekskill, N. Y.	Kappa Sigma
Bresnahan, Patrick	Holyoke	Phi Sigma Kappa
Bride, Helen Frances	Springfield	Pi Beta Phi
Broderick, Barbara Ann	North Adams	Lewis Hall
Bronson, Russell Scott	Northampton	1 East St., Northampton
Brown, Albert	Dorchester	Alpha Epsilon Pi
Brown, Richard Laurence	Mattapan	Alpha Epsilon Pi
Brown, Richard Milton	Swampscott	Poultry Plant
Brunner, Barbara Anne	Cranbury, N. J.	Lewis Hall
Bukoski, Frank Joseph	North Amherst	Sunderland Road
Bulman, Cornelius	Jamaica Plain	Butterfield House
Burgess, George Elton, Jr.	Amherst	Federal Circle B-3
Burkhardt, Edgar Seaverns, Jr.	Newton	Theta Chi
Burnett, Wayne Arthur	Amherst	Federal Circle H-3
Burres, David	Springfield	Butterfield House
Burtman, Arthur Bertram	Roxbury	418 North Pleasant St.
Bussolari, Walter Morse, Jr.	Springfield	North College

Caldwell, Shirley	Melrose	Lewis Hall
Campbell, Arthur Maurice	East Boston	800 North Pleasant St.
Campbell, Roland Arthur	Pelham	Pelham Road
Canavan, Kathleen Mary	Amherst	434 North Pleasant St.
Carpenter, Allan Cameron	Greenfield	Butterfield House
Carroll, Aldea	Bridgewater	Lewis Hall
Casey, William Joseph	Gardner	Sigma Phi Epsilon
Casper, Jerome	Dorchester	Butterfield House
Cassidy, James Edward	Springfield	Butterfield House
Cederberg, Charlotte Ann	West Roxbury	Adams House
Chadwick, Elizabeth	New Bedford	Lewis Hall
Chapman, Florence Marcia	Haverhill	Lewis Hall
Chase, Harold William	Lawrence	389 North Pleasant St.
Chatel, Robert Kenneth	Amherst	Federal Circle J-3
Chiklakis, Harry	Springfield	Q.T.V.
Child, Barbara Ruth	Northampton	Lewis Hall
Chmura, Joseph John, Jr.	Chicopee	49 Fearing St.
Church, Robert Clayton	Medford	Butterfield House
Clark, Shirley Ida	Millis	Lewis Hall
Clayton, Melvin Benjamin	Dorchester	14 Allen St.
Cleary, Jean Justine	Easthampton	Thatcher Hall
Clorite, Robert Henry	Fall River	North Amherst
Clough, Louie Arthur	Greenfield	62 Mt. Pleasant
Cohen, Joseph Calman	Holyoke	Butterfield House
Cohen, Roslyn Gloria	Mattapan	Lewis Hall
Cohen, Saul	Springfield	Tau Epsilon Phi
Cohen, William	Brookline	Butterfield House
Collier, David Floyd	Groton	Lambda Chi Alpha
Collingwood, Joseph, Jr.	Holyoke	Butterfield House
Colton, Henry Frink, Jr.	Springfield	Theta Chi
Conlon, John	Worcester	27 Woodside Ave
Conlon, Therese Joan	Lowell	Lewis Hall
Cooper, Elizabeth Cormie	Arlington	Lewis Hall
Cooper, Herbert Joseph	Boston	Tau Epsilon Phi
Copeland, Judith Lillian	Peabody	Lewis Hall
Coppelman, Samuel David	Brighton	41 Phillips St.
Cormier, Arlene Teresa	Leominster	Thatcher Hall
Coughlin, Jeremiah Paul	Springfield	26 Spring St.
Courchene, William Leon	Springfield	Kappa Sigma
Cranson, Eva Mae	Northampton	Thatcher Hall
Crean, John Francis, Jr.	West Springfield	Butterfield House
Crepeau, Claude Louis	Greenfield	Butterfield House
Crerie, Robert Franklin	Worcester	Theta Chi
Cuff, David	North Weymouth	358 North Pleasant St.
Culbertson, Thomas Aloysius	Philadelphia, Pa.	Butterfield House
Culver, Homer Madison	Easthampton	18 Park St., Easthampton

Cummings, Robert Hanson	Melrose	Butterfield House
Cynarski, Edward Martin	Adams	417 North Pleasant St.
Daniel, Eldon Cary	Walpole	Butterfield House
Davenport, Jane Renwick	Chestnut Hill	Pi Beta Phi
Davis, David Hirsch	East Taunton	Tau Epsilon Phi
Davis, Dorothy	North Middleboro	Lewis Hall
Day, Robert	Amherst	Federal Circle H-2
DeCarlo, Joseph Andrew	Springfield	Butterfield House
Decker, Lois	Dalton	328 Lincoln Ave.
DeRose, Charles Robert	Amherst	149 Sunset Ave.
deVos, Francis	Amherst	Federal Circle H-4
DeWolf, Gordon Parker, Jr.	Chelmsford	414 North Pleasant St.
DeYoung, Raymond Charles	Boston	Federal Circle K-3
Diamond, Robert Edward	Easthampton	Kappa Sigma
Dickmeyer, John	Florence	Kappa Sigma
DiGrappa, Yolanda Anne	Maynard	Lewis Hall
Divoll, Lincoln Allen	Worcester	Theta Chi
Dobkin, Elaine	Mattapan	Lewis Hall
Donovan, John Joseph	West Springfield	Commonwealth Circle T-4
Dowling, William Joseph	Dorchester	Sigma Phi Epsilon
Drewniak, Edwin	Chicopee	Butterfield House
Drewniany, Henry Frederick	Westfield	Butterfield House
Drexel, Shirley Anne	Easthampton	Lewis Hall
Dunn, John Anthony	Jamaica Plain	North College
Dunn, Shirley Marie	Montague	Thatcher Hall
Dymerski, Leo Joseph	Haydenville	Federal Circle C-3
Eddy, Robert Donald	Amherst	19 South Whitney St.
Edelstein, Hyman Saul	Dorchester	Butterfield House
Edmonds, Arreta Irene	Pittsfield	Lewis Hall
Edwards, Edward	Cambridge	Phi Sigma Kappa
Eissman, Gloria Zelda	Brighton	Lewis Hall
Elias, Jason Sundell	Lawrence	Butterfield House
Ellis, Richard	East Brewster	Kappa Sigma
Elwell, Dorae Louise	Longmeadow	Pi Beta Phi
Erickson, Arnold Levi	Gardner	Commonwealth Circle R-28
Fagan, Barbara Nancy	Lynn	Lewis Hall
Farley, Charles Judd, Jr.	Concord	Commonwealth Circle R-28
Farquharson, John Harold	Wareham	Draper Hall
Fazli, Mohsen	Teheran, Iran	Butterfield House
Feffer, Melvin Harold	Springfield	47 Draper St., Springfield
Ferrell, Roy Herbert	Southwick	North College
Flaherty, William Donald	Belchertown	Cold Spring St., Belchertown
Flint, Mary Elizabeth	East Mansfield	Lewis Hall
Foglia, Virginia Claire	Athol	Lewis Hall
Foley, John Joseph, Jr.	Amesbury	Lamba Chi Alpha
Footit, Douglas Bernard	Springfield	24 Nutting Ave.
Ford, Nancy	Wellesley	Lewis Hall
Ford, Phyllis Marjorie	Gardner	Lewis Hall
Fox, Thomas Walton	South Attleboro	Alpha Gamma Rho
Francer, Sydney Haskell	Mattapan	Butterfield House
Frappier, Gerard Emile	Holyoke	Q.T.V.
Frawley, Joanna	Turners Falls	Thatcher Hall
Fulton, Edward Erwin	Amherst	608 South Pleasant St.
Gardner, Marcia Janet	Nantucket	Thatcher Hall
Geer, Donald	Belchertown	So. Liberty St., Belchertown
Geis, Gordon George	Northampton	North College
Gilbert, Morton Bigelow	Haverhill	Butterfield House
Gillis, Louise Isabel	Watertown	Thatcher Hall
Gilman, Marshall Steve	Malden	Commonwealth Circle R-21
Glabau, William Edward	New Britain, Conn.	395 North Pleasant St.
Gleason, Robert Blanchard	East Lebanon	24 Nutting Ave.

Gochberg, Diane	Chelsea	Thatcher Hall
Godin, Edmund Joseph	Longmeadow	Commonwealth Circle T-2
Goldberg, Eugene Morris	Brookline	Butterfield House
Goldberg, Howard	Brookline	North College
Goldblatt, Irving	Springfield	414 North Pleasant St.
Goldin, George Jacob	Lynn	North College
Goldstein, Sadie	Chelsea	Lewis Hall
Gordon, Florence Bernice	Springfield	Thatcher Hall
Gordon, Robert Danton	Brookline	417 North Pleasant St.
Gorman, Kenneth Peaslee	Watertown	Butterfield House
Graham, John Howard	Worcester	20 Kendrick Place
Green, Robert Hall	Woodstock, Vt.	Butterfield House
Greenberg, Bernard	Springfield	25 Nutting Ave.
Greenberg, Paul	Fall River	Tau Epsilon Phi
Greene, Lillyan Dee	Roxbury	Thatcher Hall
Greenfield, Daniel Samson	Chelsea	418 North Pleasant St.
Groff, Charles Edward	Ashfield	Draper Hall
Gruntler, Phyllis May	Ware	Lewis Hall
Gula, Alice Teresa	Easthampton	Thatcher Hall

Hager, John Henry	Lexington	North College
Hall, Barbara Ann	Shrewsbury	Chi Omega
Hall, Francis William	Needham Heights	Butterfield House
Hall, Richard Horace	Newton Centre	North College
Hall, Roderick Chesley, Jr.	Auburn	6 South East St.
Halvorsen, Roger Earle	Palmer	24 McClellan St.
Hamilton, Barbara Helen	West Medway	Lewis Hall
Handforth, John Walter	West Medway	Kappa Sigma
Hansen, Richard Clarence	East Boston	Commonwealth Circle S-13
Hauterman, Margaret Emma	Holyoke	Thatcher Hall
Heady, Carol Jean	Palmer	Lewis Hall
Henry, John Richard	Richmond	North College
Hight, Wendell Parker	Arlington	Kappa Sigma
Hirshon, Pearl Gladys	Dorchester	Thatcher Hall
Hogan, Janet Eleanor	Springfield	Lewis Hall
Holden, Herbert John	Leominster	Commonwealth Circle T-6
Holloway, John William, Jr.	Wethersfield, Conn.	Theta Chi
Holly, Marjorie Joyce	Pittsfield	Lewis Hall
Holt, John Arthur	Easthampton	7 Winter St., Easthampton
Howard, Catherine Agnes	North Brookfield	Thatcher Hall
Howe, Ralph Wesley, Jr.	Wilmington, Vt.	Theta Chi

Jackler, Joan Marion	Holyoke	Lewis Hall
Jackowski, Alphonse Joseph	Hatfield	117 Cabot St., Holyoke
Jackson, Richard Field	Walpole	Theta Chi
Januszkiewicz, Stanley	Willimansett	Commonwealth Circle S-12
Jerome, Arthur	Holyoke	North College
Johnson, Elizabeth Ann	Worcester	Thatcher Hall
Jones, Frederick Lockhart	Hopedale	Commonwealth Circle S-27
Jost, Dana Nelson	Needham	Clark Hall
Joyce, Richard	Florence	Alpha Gamma Rho
Judge, Martin Peter	Holyoke	Phi Sigma Kappa

Kallaugher, Wallace	Holyoke	Federal Circle M-1
Kaplan, Bernard Sumner	Brookline	417 North Pleasant St.
Kaplan, Max Milton	Springfield	Federal Circle M-2
Kaufman, Abraham	Dorchester	Tau Epsilon Phi
Kelly, Mary Margaret	Pittsfield	Thatcher Hall
Kelly, Michael	Holyoke	116 Pearl St., Holyoke
Kendall, Charles Allen	West Springfield	Commonwealth Circle S-24
Kenyon, Forrest Leonard	Richmond, Vt.	Kappa Sigma
Kenyon, Russell Rutherford	Amherst	Federal Circle A-5
Kern, Herbert Lewis	Revere	Tau Epsilon Phi
Kerr, Stratton	Hampden	Commonwealth Circle T-7

Khazai, Gholi Allah	Teheran, Iran	179 Lincoln Ave.
Kinghorn, Mildred Elizabeth	Pittsfield	Thatcher Hall
Kinmonth, Raymond Arnold	Belchertown	North College
Kinsman, Donald Markham	Framingham	61 Fearing St.
Koenig, Walter Adolph	Jefferson	259 Lincoln Ave.
Kopp, George Thomas	Cambridge	Draper Hall
Korson, Natalie Diane	Chelsea	Lewis Hall
Kramer, Diane Rosalyn	Roxbury	Lewis Hall
Kreetsburg, Phyllis	Roxbury	Thatcher Hall
Kronheim, Ursula Ruth	Longmeadow	Thatcher Hall
Kunian, Charlotte	Lynn	Thatcher Hall

Lacey, Richard Joseph	Holyoke	Commonwealth Circle S-30
Ladd, Harlan Bolles	Milford, Conn	North College
Lambert, Judith Trowbridge	Worcester	Thatcher Hall
Landry, Jerome Raymond	Northampton	Lambda Chi Alpha
Lane, John Everett	Worcester	Commonwealth Circle S-6
Lane, William Norman	Florence	204 No. Maple St., Florence
Langerman, Lucille Mae	Mattapan	Lewis Hall
LaRose, LeRoy Joseph	Northampton	Mt. Pleasant Inn
Lauder, Donald Stewart	Amherst	35 High St.
Laurin, Cecile Edna	Holyoke	Lewis Hall
Lavigne, Claire Lillian	Chicopee	Lewis Hall
Lavin, Melvin	Springfield	25 Nutting Ave.
Lawrence, John Robinson	Falmouth	449 North Pleasant St.
Leahey, Robert Peter	Westfield	Butterfield House
Leal, Joseph Rogers	New Bedford	241 Northampton Rd.
Leblanc, Cyrille	Gardner	Commonwealth Circle T-7
LeBlanc, Francis Herve	Gardner	Butterfield House
Lee, Barbara	Wellesley Hills	Thatcher Hall
Lee, Richard Henry	Worcester	Kappa Sigma
Legrand, Richard Joseph	South Hadley Falls	Commonwealth Circle
Leonard, Jane Annis	Islington	Thatcher Hall
Levin, Arnold Murray	Allston	178 North Pleasant St.
Levine, Jerome Sinclair	Springfield	382 North Pleasant St.
Levine, Richard	Mattapan	417 North Pleasant St.
Liberman, Deborah Adeline	Holyoke	Lewis Hall
Licciardello, Joseph John	Lawrence	North College
Lieberman, Donald	Springfield	Commonwealth Circle R-3
Liley, William Lester, Jr	Amherst	Federal Circle C-2
Litz, N. Jean	Monson	Chi Omega
Lovelace, Warren	Norwood	Q.T.V.
Lowell, Robert	Pelham	R.F.D. 2
Lynch, Robert Joseph	Milford	394 North Pleasant St.

MacCollom, George Butterick	Roslindale	Commonwealth Circle S-17
Macina, Henry Raymond	Northampton	Butterfield House
Magri, Joseph Louis	Holyoke	111 Pearl St., Holyoke
Maier, Nancy Ann	Wellesley	Thatcher Hall
Maisner, Walter Peter	Leverett	Leverett
Manning, Earl	Taunton	140 Hungarian Ave., Sunderland
Marchioni, Gloria Anne	Salisbury	Thatcher Hall
Marcotte, George Maurice	New Bedford	Butterfield House
Margolis, Adele Rona	Roxbury	Lewis Hall
Margolis, Barbara Sayre	Brookline	Lewis Hall
Maron, Sylvia Zelda	Peabody	Lewis Hall
Marshall, James	Dalton	Phi Sigma Kappa
Marshall, Margaret Mary	Dalton	Lewis Hall
Masterson, Joseph Henry, Jr.	Lowville, N. Y.	20 Kendrick Place
Matthes, Marie	Methuen	Pi Beta Phi
Mayer, Alice Elizabeth	Springfield	Thatcher Hall
McCarthy, Marilyn Elizabeth	New Bedford	Lewis Hall
McCarthy, Thomas Alfred	West Deerfield	Commonwealth Circle T-6
McDonough, Regina Mary	Watertown	Thatcher Hall

McGarr, Thomas Joseph	Lowell	Commonwealth Circle
McGrath, Edward John, Jr.	Easthampton	Lambda Chi Alpha
McKenney, Rueith Ann	Swansea	328 Lincoln Ave.
Mellen, William James	Amherst	Federal Circle H-8
Mendelson, David Ira	New Bedford	Tau Epsilon Phi
Mentzer, Francis	Bolton	Commonwealth Circle S-8
Merrill, William Roberts	Norwood	Draper Hall
Micka, Anne	Easthampton	Stockbridge House
Miller, Carolyn Evans	West Springfield	Lewis Hall
Miller, Janet Elizabeth	Springfield	Lewis Hall
Miller, Nancy	Brookfield	Lewis Hall
Mills, Homer	Wellesley	Phi Sigma Kappa
Miner, Harold Arthur	Springfield	Kappa Sigma
Momnie, Paul Edward	Chicopee Falls	Butterfield House
Monesi, Dorothy Corrine	Springfield	Thatcher Hall
Montague, Richard	Amherst	813 North Pleasant St.
Moore, Julia Lee	Ashfield	Lewis Hall
Morell, Roger John	Greenfield	Meadow Rd., Greenfield
Morgan, Victor Mathison	Newtonville	North College
Morrison, Daniel Kenneth	Springfield, Vt.	Q.T.V.
Morrison, Marie	North Brookfield	Lewis Hall
Moser, Marilyn Louise	Amherst	75 Sunset Ave.
Mozden, Peter Jan	Three Rivers	30 North Hadley Road
Mpelkas, Christos	Lynn	Poultry Building
Mullaly, John	Pittsfield	Lambda Chi Alpha
Murphy, Eugene	Longmeadow	Kappa Sigma
Muzyka, Myron Michael	Hadley	11 East St., Hadley
Myers, Harold Edward	Northampton	North College
Nason, Marjorie Louise	Woburn	Thatcher Hall
Neville, Edward Stuart	Holyoke	Butterfield House
Newbury, Ruth Esther	Petersham	Lewis Hall
Newton, Donald George	Amherst	Federal Circle K-4
Nichols, Charles Emerson	Ludlow	West Experiment Station
Nickas, Paul	Gloucester	382 North Pleasant St.
Nicoll, Mary Louise	Melrose	Lewis Hall
Nirenberg, Charles	Millis	Tau Epsilon Phi
Nisbeth, Val	Chappaqua, N. Y.	North College
Novotny, George William	Northampton	395 North Pleasant St.
Noyes, Robert	Amesbury	179 Lincoln Ave.
Obelsky, Alvan Jerome	Dorchester	Commonwealth Circle R-5
O'Brien, Mary Therese	Pittsfield	Lewis Hall
O'Connell, Philip	Hingham	North College
Olaussen, Elizabeth Ann	Rochester	Pi Beta Phi
O'Neil, Alice Rose	Ludlow	Chi Omega
ONeill, Raymond George	Northampton	Lambda Chi Alpha
Osuch, Helen	New Bedford	Thatcher Hall
Otero, Edward Joseph	New York, N. Y.	29 South Pleasant St.
Panzica, Anthony Joseph	Northampton	60 Market St., Northampton
Paquette, Rita	Northampton	Thatcher Hall
Parker, Carol	Melrose	Lewis Hall
Parker, Eleanor Irene	Uxbridge	Lewis Hall
Parker, Virginia Aileen	Cummington	Lewis Hall
Parsons, Kenneth John	Northampton	358 North Pleasant St.
Peck, Donald Ernest	Barre	21 Allen St.
Pelton, Faith Eveline	Lenox	Lewis Hall
Pemstein, Joan Smith	Worcester	Thatcher Hall
Pender, Therese Anne	Pittsfield	Lewis Hall
Penn, Mitchell Ely	Springfield	Commonwealth Circle R-7
Pepi, Rose Marie	Framingham	Lewis Hall
Perkins, Georgia Ernestine	Springfield	Lewis Hall
Perkins, Russell Gedney	Springfield	Kappa Sigma
Perry, Henry	Winthrop	Butterfield House

Phaneuf, Raoul	Ware	North College
Pickett, Richard Davies	Northampton	42 Harrison Ave., Northampton
Pimentol, David	Middleboro	Alpha Gamma Rho
Pinckney, Norma Alene	Dorchester	Lewis Hall
Piotrowski, Karol Rudolf	Willimansett	North College
Polito, Salvatore Anthony	Northampton	43 Fair St., Northampton
Porter, Elliott Walter	Dorchester	Tau Epsilon Phi
Porter, Gilbert Harris	Westfield	768 North Pleasant St.
Potter, William Midgley, Jr.	Framingham	Butterfield House
Pratt, Margaret Gay	Winsted, Conn.	Thatcher Hall
Pratt, Robert Winthrop	Dalton	Kappa Sigma
Prendergast, Clovis Andrew	Northampton	27 Revell Ave., Northampton
Presto, Alphonse Raymond	Holyoke	Butterfield House
Price, James Albert	Wantagh, N. Y.	Phi Sigma Kappa
Prouty, Langdon, Jr.	Littleton	Federal Circle A-7
Prouty, Norman Peter	Springfield	Butterfield House
Publicover, Harold John	Arlington	282 Triangle St.
Purcell, Barbara Therese	Bradford	Lewis Hall
Pustilnick, Shirley Louise	New Bedford	Thatcher Hall

Radlo, Jason	Brookline	41 Phillips St.
Randall, William Edwin, Jr.	Roslindale	Commonwealth Circle S-19
Ratner, Irving Abraham	Dorchester	Tau Epsilon Phi
Ray, Donald Paul	Malden	Commonwealth Circle
Raymond, Robert Gordon	Auburn	Lambda Chi Alpha
Reed, Theodore	West Springfield	Kappa Sigma
Reis, Robert Andrew	West Chelmsford	62 Mt. Pleasant
Rice, Virginia Ann	Melrose	Lewis Hall
Richardson, Fred Kellogg	Amherst	88 Woodside Ave.
Richardson, Patricia Helena	Haverhill	Lewis Hall
Riley, Mary Teresa	New Bedford	Lewis Hall
Roberge, Joseph Philip	Greenfield	Federal Circle A-3
Robertson, William Fenton	East Lansing, Mich.	Theta Chi
Robichaud, George Francis	Greenfield	Theta Chi
Robinson, Barbara	East Longmeadow	Thatcher Hall
Robinson, George Howard	North Wilbraham	Butterfield House
Robinson, William Everett	Chicopee Falls	Butterfield House
Rodriguez, Earl Bernard	Northampton	North College
Romm, Avrom Nathan	Holyoke	North College
Roseman, Hyman	Lynn	Alpha Epsilon Pi
Rosenfield, George Herbert	Roxbury	Commonwealth Circle R-17
Rosenthal, Ruth Gloria	Brighton	Lewis Hall
Rowe, Barbara Preston	New Bedford	Thatcher Hall
Roy, Norman Joseph	Southbridge	Butterfield House
Rubin, Merwin Herbert	Springfield	Tau Epsilon Phi
Runquist, George Albin	Springfield	Theta Chi
Ryan, Mary Ann	Amherst	18 Kellogg Ave.

Sagan, Marc	Roxbury	Tau Epsilon Phi
Samborski, Mitchell	Westfield	288 Triangle St.
Sanctuary, Janet Olive	Amherst	20 Allen St.
Saulnier, Dorothy Ann	Framingham	Thatcher Hall
Schekman, Frances	Springfield	Lewis Hall
Schlenker, Ruth Erna	Lynnfield	Lewis Hall
Schubert, Everett Dean	Metheun	Commonwealth Circle T-21
Sears, Jane Ann	Amherst	76 Fearing St.
Sellar, Donald Charles	Worcester	Federal Circle C-1
Senecal, Robert	Springfield	24 Nutting Ave.
Sevoian, Martin	Methuen	North College
Shannon, John Ward	Milton	Theta Chi
Shaponik, Abraham Max	Springfield	414 North Pleasant St.
Sheehan, Francis Keith	Northampton	15 Brewster St., Northampton
Shore, Milton	Chelsea	Tau Epsilon Phi
Shufelt, Bruce Whitman	East Walpole	Phi Sigma Kappa

Shumway, Frank	Northampton	Kappa Sigma
Siegel, Lawrence Herbert	Dorchester	Alpha Epsilon Pi
Silbergleit, Allen	Springfield	Butterfield House
Silverman, Lorraine Ryna	Chelsea	Thatcher Hall
Sims, Alvin Jack	Brockton	389 North Pleasant St.
Sindermann, Carl James	North Adams	Plumtrees, Sunderland
Sirine, Gloria Frances	Springfield	Thatcher Hall
Skiff, Charles Francis	Ft. Lauderdale, Fla.	Butterfield House
Skiffington, Marie Catherine	West Brookfield	Thatcher Hall
Skolfield, Frederick Cabot	Brookline	Butterfield House
Slate, Margaret Elizabeth	Bernardston	Lewis Hall
Slavin, Morton Alfred	Springfield	Butterfield House
Smith, Howard	Easthampton	Lambda Chi Alpha
Smith, James Morrill, Jr.	West Springfield	Kappa Sigma
Smith, Richard Norman	Bergenfield, N. J.	Lambda Chi Alpha
Snow, Charlotte Alice	Middleboro	Lewis Hall
Southwick, Beverly	East Longmeadow	Lewis Hall
Spivak, Calvin Milton	Medway	24 McClellan St.
Spokowski, Walter	Northampton	86 Maple St., Northampton
Spreiregen, Naomi Lou	Dorchester	Lewis Hall
Staniszewski, Bernice Helen	Palmer	Lewis Hall
Stein, Esther	Holyoke	Lewis Hall
Stern, Eileen Therese	Lowell	Lewis Hall
Stevens, Patricia Mary	Amesbury	Thatcher Hall
Stevens, Waldo Addison	Methuen	Commonwealth Circle T-9
Sullivan, Arden Claire	Holyoke	Lewis Hall
Sullivan, John Francis	Holyoke	Commonwealth Circle R-16
Sullivan, Norman John	South Hadley Falls	West Experiment Station
Sullivan, Ruth Elizabeth	Brockton	328 Lincoln Ave.
Suriner, Priscilla Packard	Chester	1185 North Pleasant St.
Sykes, Beverly Bruce	Chester	Thatcher Hall
Szetela, Walter Frank, Jr.	Chicopee	Butterfield House
Tanabaum, Eileen Ruth	Brookline	Lewis Hall
Tassinari, Peter Joseph	Salem	Commonwealth Circle R-15
Tetrault, Robert William	Springfield	North College
Thatcher, Donald Newton	West Dennis	62 Mt. Pleasant
Therrien, Alvin Alfred	Chicopee Falls	Butterfield House
Thomas, Robert Murray	Needham	Commonwealth Circle S-17
Thorne, Harry Wallace	Saugus	Draper Hall
Thresher, Leon Chester	Hardwick	Butterfield House
Timberlake, James Thomson	Belmont	Kappa Sigma
Tinkham, Barbara Mae	Middleboro	Thatcher Hall
Tolman, Robert Alexander	Springfield	Lambda Chi Alpha
Tolman, Roslaide Myra	Chelsea	Lewis Hall
Toohey, Robert William	Chicopee	North College
Tower, True	Abington	Q.T.V.
Trombla, Alison	Amesbury	Lewis Hall
Trott, Emily Lambert	Auburndale	Lewis Hall
Trousdale, William Marshall	Boston	Butterfield House
Truesdale, Frank	Lynn	North College
Trull, John Pattison	Dudley	Tyler Court
Tunis, William	Easthampton	Phi Sigma Kappa
Vail, Winthrop Bruce	Springfield	Kappa Sigma
Varney, Eugene	Gt. Barrington	North College
Vilker, Arlyne Lorraine	Revere	Lewis Hall
Vondell, Janet Elizabeth	Amherst	80 Fearing St.
Vondell, Philip Allen	Amherst	80 Fearing St.
Walak, Anna	Berkshire	Lewis Hall
Walkowiak, Theresa Julia	Webster	Thatcher Hall
Walsh, Marilyn Jean	Holyoke	Lewis Hall
Waskiewicz, Stanley Edwin	Amherst	16 Eames Ave.
Waters, Corinne Mary	Pittsfield	Lewis Hall

Watson, John Philip	Worcester	North College
Waugh, Clifton Mason	New Braintree	Federal Circle F-6
Weidhaas, John	Northampton	North College
Wells, Lewis Francis	Melrose	Butterfield House
Wescott, Wilma Roberta	East Poultney, Vt.	Thatcher Hall
West, Herbert	Fall River	Alpha Gamma Rho
West, Mildred Louise	Fall River	Thatcher Hall
Wetherbe, Franklin Bond	Shutesbury	449 North Pleasant St.
White, John Henry	Winchendon	Q.T.V.
Whitney, Bertha Louise	Fitchburg	Thatcher Hall
Whorf, George Cushing	Littleton	Commonwealth Circle S-18
Wileikis, Elizabeth Ann	North Amherst	91 Summer St.
Winer, Nathan	Palmer	
Wisnoski, Francis Joseph	Ware	North College
Wolf, David	Dorchester	Alpha Epsilon Pi
Wood, David Rupert	Athol	Butterfield House
Woods, Charles	Northampton	Kappa Sigma
Worthing, Ruth Marilyn	Holyoke	Thatcher Hall
Wright, Charles Merrick	Northampton	North College
Wright, George	Northampton	67 West St., Northampton
Wroe, Robert Leonard	Foxboro	Butterfield House

Yarchin, Gertrude Bernice	Roxbury	Thatcher Hall
Yarosh, David	Boston	Butterfield House
Young, Alan Nelson	Belmont	Butterfield House
Young, Betty Ann	Pittsfield	Lewis Hall
Young, Edward	Roxbury	Commonwealth Circle R-4

Zebrowski, George Joseph	Holyoke	20 Kendrick Place
Ziemba, Theodore John	Chicopee Falls	Butterfield House
Ziman, Fred	Providence, R. I.	Federal Circle A-2
Zukowski, Adolph Michael	South Deerfield	So. Mill R. Rd., So. Dfld.

CLASS OF 1950

Adams, Shirley Marie	Hopedale	Adams House
Adams, William Horace	Pittsfield	Butterfield House
Alexander, Allan	Hudson	Butterfield House
Allen, Donald Macomber	Fairhaven	Commonwealth Circle T-15
Andersen, Lorene Smith	Portland, Maine	Adams House
Anderson, Donald Lindsay	Stoneham	Commonwealth Circle T-34
Anderson, Francis Xavier	Greenbush	Commonwealth Circle
Anderson, Leonard	Easthampton	61 Nhmpton St., Ehmptn.
Armato, Mary Catherine	Winchester	Adams House
Atkocius, Vitie Charles	Worcester	Commonwealth Circle T-22
Atlas, Myron Lawrence	Winthrop	Butterfield House

Baier, John Leonard	Melrose	Phi Sigma Kappa
Bailey, Ralph Leigh	New Bedford	Draper Hall
Bangs, Joan Marie	North Hatfield	Adams House
Bardwell, Arthur Cory	Hatfield	Draper Hall
Barron, Roger Thomas	Hamilton	Draper Hall
Bartlett, Barbara Arey	Worcester	Adams House
Bausch, Edward	Holyoke	Federal Circle D-3
Beal, Robert Mitchell	Boston	Butterfield House
Belton, John Joseph	Auburndale	635 Main St.
Benedict, Clyde Laverne	Amherst	83 Gray St.
Bennett, Virginia Marie	Danvers	Adams House
Berkowitz, Norman Harrison	Boston	Commonwealth Circle
Bertocchi, Ida Elizabeth	Quincy	Thatcher Hall
Billings, Esther Bird	Plainfield	Adams House
Billings, James Leonard	Rochester, Vt.	Commonwealth Circle T-33
Blouin, Rachel Louise	Whitinsville	Adams House
Bolles, Doris Martha	Pittsfield	Adams House

Bonazzoli, Rosalind Barbara	South Sudbury	Adams House
Bourdeau, Bernard William	Turners Falls	Commonwealth Circle S-3
Bower, Zane Audbrey	Chelsea	Commonwealth Circle T-23
Bresnick, Irene	Mattapan	Adams House
Bricknell, Carlton Allen	Brockton	1039 North Pleasant St.
Brigham, George	Shrewsbury	Butterfield House
Brooks, David Emerson	Waltham	Draper Hall
Bross, William Albert	Brighton	Butterfield House
Brown, Ellen Davoll	North Kingston, R. I.	Adams House
Brunette, Harold Francis	Amherst	12 Sunset Court
Buck, Ruth Marie	Stoneham	Adams House
Bulcock, Robert	New Bedford	Draper Hall
Burbutis, Paul Philip	Lawrence	Butterfield House
Burnett, Phyllis Joyce	New York, N. Y.	Federal Circle H-3
Burnett, Priscilla Eunice	Housatonic	Adams House
Burr, Elizabeth Pauline	Springfield	Adams House
Burt, Richard Henry	Brookfield	Butterfield House
Byrnes, John Edward	Springfield	Butterfield House
Canter, Henry Frederick	West Newton	North College
Carbone, Doris Catherine	Gardner	Adams House
Carew, Ralph Noble	Monson	Butterfield House
Carlson, Alan Ervin	Lynn	Butterfield House
Carmel, William Edward	Holyoke	Commonwealth Circle T-34
Caron, Alexis Adelbert	Indian Orchard	Butterfield House
Caron, Paul Donahue	Huntington	6 South East St.
Carr, Eleanor Sheldon	Chelmsford	Adams House
Carr, Francis Xavier	Lowell	Commonwealth Circle
Casey, John Francis, Jr.	Middleboro	Butterfield House
Cerel, Marilyn Shirley	Winthrop	Adams House
Chadwick, Patricia Ann	West Boxford	Adams House
Chaffee, Thomas Dwight	South Hadley	63 Woodbridge, So. Hadley
Chandler, Edwin Hammond	West Newton	North College
Chapdelaine, Robert Harvey	Chicopee Falls	North College
Chapin, Robert Raymond	Northfield	Commonwealth Circle T-26
Chizinsky, Walter	Springfield	Butterfield House
Clark, George Dale	Foxboro	Butterfield House
Clark, Jo-Anne	Greenfield	Adams House
Clark, Thomas Edward	Springfield	Butterfield House
Cohen, Merwin	Holyoke	Butterfield House
Colbert, Edward Matthew, Jr.	North Adams	North College
Cole, Phyllis Lillian	Methuen	Adams House
Collins, James Nolan	Springfield	Elm Tree Inn
Cormack, James Patterson, Jr.	Ludlow	Butterfield House
Cornish, Raymond	Watertown	Butterfield House
Cossar, Bernard Calvin	Brookfield	North College
Cote, Mary Louise	West Springfield	Adams House
Cotton, Webster Eliot	Florence	Butterfield House
Cousineau, Edward Francis, Jr.	Springfield	North College
Couture, Lawrence Henry	Indian Orchard	North College
Cowles, John Caldwell	Ipswich	North College
Crosby, Jacqueline	Haverhill	Adams House
Crowell, Eleanor	Sandwich	Adams House
Curran, Barbara Adell	Longmeadow	Adams House
Daly, Daniel Richard	Gardner	Butterfield House
Damon, John Usher	Lowell	North College
Dash, William Hugh	Salem	Butterfield House
Dean, Douglas	Holyoke	Butterfield House
Dean, Randall Lawson	Shrewsbury	Butterfield House
Delevoryas, Theodore	Chicopee Falls	East Experiment Station
Demers, Joseph Robert	Fitchburg	West St.
Denny, Howard Ernest	Northampton	5 Jewett St., Northampton
DeNyse, John Lisle	Amherst	203 Triangle St.

DeSautels, Albert Norman	Greenfield	1 Willow St., Greenfield
Dickinson, Paul	Trenton, N. J.	79 North Prospect St.
Dickman, Mary Lucille	Rockport	Adams House
Diersch, George Burton	East Weymouth	Commonwealth Circle T-25
Dillard, Janice Amanda	Pittsfield	Adams House
Dimock, Ruth Elizabeth	Oxford	Adams House
Dobbs, Ruth Georgia	South Deerfield	57 Graves St., So. Deerfield
Dobias, William John	Colrain	Van Noys Rd., Colrain
Doe, Peter Scoville	Winthrop	North College
Dolan, Richard Taylor	Worcester	Butterfield House
Donahue, Barbara Anne	Winthrop	Adams House
Donoghue, Mariellen	Holyoke	Adams House
Doran, Stephen Pritchard	Amherst	148 Lincoln Ave.
Downey, John Eliot	Dudley	Butterfield House
Drago, Russell Stephen	Turners Falls	Butterfield House
Drevinsky, Peter Joseph	Middleboro	Commonwealth Circle T-31
Drohan, Leonard Joseph	South Hadley Falls	Commonwealth Circle T-26
Dubois, John Howard	Maywood, N. J.	Commonwealth Circle T-27
Dugas, Paul	Lynn	North College
DuMond, Jack LeRoy	Springfield	Butterfield House
Dwyer, Philip Quigley	Holyoke	Butterfield House

Ellsas, Janice Eve	Fall River	Adams House
Emmert, Fred Herbert	Holyoke	75 East Pleasant St.
Estelle, Arnold John	West Springfield	24 Nutting Ave.
Evans, James William	Easthampton	Commonwealth Circle R-21
Ewing, David Wesley	Easthampton	23 Phillips St.
Ewing, Jean Osborne	East Bridgewater	Adams House

Ferguson, Claire	Westford	Adams House
Field, Thomas William	Greenfield	Commonwealth Circle T-27
Fienman, Harold	Brighton	North College
Finck, Richard Winthrop	Florence	North College
Fischer, Betty Louise	Newton Centre	Adams House
Fletcher, Gardner Bruce	Springfield	Butterfield House
Florini, Francis Constant	North Adams	Draper Hall
Flynn, John Edward	Springfield	Butterfield House
Fontaine, Edward Charles	Haydenville	22 Kingsley Ave., Haydenville
Forman, Joyce Leila	Brookline	Adams House
Freeman, Barbara Lucy	Shelburne Falls	Adams House
Freeman, John Joseph	Milton	North College
Fulton, Wallace Russell	Amherst	608 South Pleasant St.
Funkhouser, Edward Kramer, Jr.	Montclair, N. J.	Commonwealth Circle T-30

Gabrielsen, David Gerard	Webster	Butterfield House
Gagnon, Alvin Joseph, Jr.	Chicopee	Butterfield House
Gaines, Walter Austin	Greenfield	306 Wells St., Greenfield
Gallamore, William Andrew	West Springfield	Butterfield House
Gallotta, Diana Louise	North Attleboro	Adams House
Gardner, Leonard Foster	West Pelham	R.F.D. 2, Amherst
Gardner, Robert Myles	West Pelham	R.F.D. 2, Amherst
Gerardo, Henrique	Holyoke	Butterfield House
Gfroerer, Wayne Franklin	Melrose	Commonwealth Circle T-5
Gibbs, Irving	Chelsea	Commonwealth Circle T-23
Gibbs, Shirley Leone	Malden	Adams House
Gilboard, John	Lawrence	Butterfield House
Giordano, Rosemary Elizabeth	Everett	Adams House
Goldberg, Hubert Selwyn	Brookline	Commonwealth Circle R-25
Goldfarb, Charles Curtis	Dorchester	Butterfield House
Goodman, Rose Sarah	Spencer	Adams House
Goodman, Theodore Joseph	Chelsea	Butterfield House
Goodspeed, Roger Allyn	Osterville	Kappa Sigma
Gore, Peter Barry	Amherst	16 North Hadley Road
Gould, Walter Phillip	North Adams	Commonwealth Circle T-20
Gracey, James Donald	Springfield	Butterfield House

Grader, George Wilson, Jr.	Marblehead	Butterfield House
Grant, Harold Davidson, Jr.	Natick	Commonwealth Circle R-4
Graves, Lorane	Sunderland	Main St., Sunderland
Green, H. Richard	Shrewsbury	Butterfield House
Grice, Frank	Taunton	Commonwealth Circle S-10
Grosser, Bernard Irving	Brookline	Butterfield House
Gullans, Rolf	West Springfield	Commonwealth Circle T-11
Gunn, Stuart Richard	Sunderland	Butterfield House

Hadley, Colin Hatfield	Lynn	Commonwealth Circle R-4
Haines, Charles William	Masonville, N. J.	Butterfield House
Hakes, Margot Fraser	Longmeadow	Adams House
Hall, Harold Francis	Palmer	8 Pearl St., Palmer
Hamilton, William Whittier	New Salem	New Salem
Hammel, Faye	Revere	Adams House
Hampson, Fred	Holyoke	25 Woods Ave., Holyoke
Hanson, Robert Bruce	East Brewster	33 Phillips St.
Harrington, Anne Alice	Worcester	Adams House
Hart, Willis Knox	West Springfield	North College
Hartwell, Phyllis Whitcomb	Acton	Adams House
Hasbrouck, Philip Bevier	Amherst	93 Fearing St.
Haskell, Joan Dorothea	Boston	Adams House
Hattin, Donald Edward	North Scituate	Butterfield House
Hauschild, Otto Emil	Granby	Commonwealth Circle S-13
Heard, Ralph Sherman	Amesbury	Clark Hall
Heffron, Frederick Amlaw	Wrentham	North College
Hilyard, Joseph Raymond, Jr.	Everett	Butterfield House
Hittinger, Richard	Belmont	Butterfield House
Hockridge, Ralph Richard	Pittsfield	Butterfield House
Holmes, Arthur James	West Brookfield	Butterfield House
Holt, Warren Milton	South Dartmouth	Montague Rd., N. Amherst
Holway, Warren Arthur	Northampton	Butterfield House
Houran, Clement Powell	Ashburnham	Butterfield House
Howard, Frank	Framingham	Commonwealth Circle R-29
Hyland, Patricia Ann	Fiskdale	Adams House

Iampietro, Patsy	Middleboro	Commonwealth Circle S-28
Insuik, Nathan Milton	Chelsea	Butterfield House
Irwin, Robert Francis	Amherst	275 North Pleasant St.

Jakobek, Adolph John	Hadley	332 Middle St., Hadley
Janofsky, Leonard Joseph	Dorchester	Butterfield House
Jenkins, Ralph Elton	North Dartmouth	Butterfield House
Johnson, Norman Earl	Worcester	Commonwealth Circle T-25
Johnston, Evan Vincent	Easthampton	Commonwealth Circle S-15
Jones, Robert Alston	Milton	Draper Hall
Julian, Barbara May	Amherst	40 Fairview Way

Kaitz, John	Brookline	Commonwealth Circle S-22
Kaye, Arthur	Springfield	Butterfield House
Kendall, Robert	Worcester	14 Allen St.
Kennedy, Claire Theresa	Springfield	Adams House
Keough, Allen Henry	Winthrop	Butterfield House
Keough, Francis George, Jr.	Springfield	East Experiment Station
Keough, John James	Springfield	East Experiment Station
King, Charles Mason	Greenfield	29 Phillips St., Greenfield
Kinghorn, Barbara Anne	Pittsfield	Adams House
Kingsbury, John Merriam	Framingham	Butterfield House
Knowland, Richard Grant, Jr.	Goshen	Butterfield House
Kolman, Merrell Bruce	Pittsfield	Butterfield House
Kolovson, Burton Jay	Malden	Butterfield House
Kosarick, Everett Adam	North Weymouth	Commonwealth Circle T-19
Kossakoski, Edward Chester	Northampton	Butterfield House
Kreiger, Elizabeth Anne	Pittsfield	Adams House
Kuhn, Robert Leo	Springfield	Butterfield House

Kulas, Frank Stanley	Hadley	Commonwealth Circle S-29
LaBarge, Harvey George	Northampton	Commonwealth Circle
LaBarge, Lionel Joseph	Leeds	51 Water St., Leeds
Labbee, Marcel Douglas	Holyoke	Federal Circle C-4
Laby, Morton Roy	Holyoke	Butterfield House
Lajoie, Francis Edward	West Springfield	Butterfield House
Lake, Stanley Warren	Needham	Butterfield House
Lamoreaux, Philip Miner	Bedford	North College
Lane, John Perry	Winthrop	Butterfield House
Laurilliard, Arthur	Springfield	North College
Lawrence, Barbara Joan	Springfield	Adams House
Learned, Wilfred Hill, Jr.	Florence	Commonwealth Circle S-32
LeBlanc, Gerald Francis	Gardner	Butterfield House
Lee, Eleanor	Rowe	Adams House
LeMay, Barbara	Belmont	Adams House
L'Esperance, Charles Henry	South Hadley Falls	Commonwealth Circle R-1
Levine, Laura	Lynn	Adams House
Lieberwirth, William	Florence	Commonwealth Circle
Litsky, Thelma Ruth	Fitchburg	Adams House
Livingston, Robert Edward	Orleans	Butterfield House
Lyons, Charles Raymond	West Springfield	North College
MacDonald, Duncan	Braintree	Butterfield House
MacDonald, Kenneth Gordon	Somerville	North College
Mach, Joseph Francis	Holyoke	Butterfield House
MacKay, William Donald	Holden	North College
MacNulty, Bradford Steven	Westfield	Butterfield House
Mailloux, Melvin Ralph	Wellesley Hills	Butterfield House
Manganaro, Anthony John	Everett	Butterfield House
Manning, John Francis	Wakefield	North College
Marble, Ralph Perkins, Jr.	Concord	North College
Margil, Joyce Marcia	Winthrop	Adams House
Marsden, Ralph Edward, Jr.	Worcester	Butterfield House
Marston, Miriam Ellen	Shrewsbury	Adams House
Martin, John Aloysius	Lowell	Commonwealth Circle T-16
Mathews, William Edward, Jr.	Palmer	Butterfield House
Matthes, Herbert Fred	Lawrence	North College
Maynard, Floyd Robert	Millers Falls	Commonwealth Circle T-18
McDonald, James Kendel	Northampton	14 Hooker Av., Northamptn
McEachern, Robert Wesley	Worcester	Butterfield House
McElroy, Ann	Orange	Adams House
McKinney, Harvey James	Springfield	Butterfield House
McLaughlin, Joan Sheila	Woburn	Adams House
Mellor, Florence Eleanor	Fall River	Adams House
Merrill, Grace Elizabeth	North Chelmsford	Adams House
Meyer, Robert Joseph	New Bedford	Butterfield House
Midgley, Robert Moore	Worcester	Commonwealth Circle T-28
Miller, Homer Blaine, Jr.	Needham	Butterfield House
Mintz, Lawrence Lester	Roxbury	Butterfield House
Mitchell, Helen Mae	Easthampton	Adams House
Monroe, Bertha Alice	Winchendon	Adams House
Moody, Marion Elizabeth	Framingham	Adams House
Moore, Donald	Kingston	Butterfield House
Morano, Mary Claire	Pittsfield	Adams House
Moreau, John Vincent	Fairhaven	Butterfield House
Muka, Arthur Allen	Greenfield	Commonwealth Circle T-18
Murphy, Edward John	Springfield	North College
Mutter, Rudolph Francis, Jr.	Easthampton	Butterfield House
Newton, Chandler Newhall	Athol	Commonwealth Circle S-2
Nickerson, Richard Gorham	East Harwich	East Experiment Station
Norton, Valerie Elizabeth	East Douglas	Adams House
Norwood, Robert	Springfield	Butterfield House

O'Brien, Thomas James	Taunton	Butterfield House
O'Connell, Joseph Daniel	South Hadley Falls	Commonwealth Circle R-26
O'Connell, Robert Francis	Northampton	North College
O'Keefe, F. Irene	Melrose	Adams House
Okolo, Thaddeus John	Hadley	Box 113, Amherst
Olinto, Crosby	Pittsfield	North College
Oliver, Yvonne Brenda	Springfield	Adams House
O'Malley, Justin	Springfield	North College
Openshaw, Howard	Quincy	93 Fearing St.
Ornsteen, Alan Charles	Haverhill	Butterfield House
O'Rourke, Mary Margaret	Holyoke	27 Morgan St., Holyoke
O'Rourke, Patricia Ann	Westfield	Adams House
Osgood, Ralph Bartlett, Jr.	Greenfield	16 Raingley Rd., Greenfield
Oster, George Francis, Jr.	Springfield	Commonwealth Circle R-6
Ostman, Harold Arne	Braintree	Butterfield House
Ouellette, Raymond Dominique	Lowell	Butterfield House

Padykula, Frank	Chicopee	North College
Parent, Ernest Lawrence	Springfield	Butterfield House
Pasini, Robert Michael	Springfield	Commonwealth Circle S-8
Patterson, Shirley Evelyn	Amesbury	Adams House
Paul, Edwin Arthur	Jamaica Plain	North College
Pearce, William Walton	West Swanzey, N. H.	North College
Pendleton, Harlow Edward	Fitchburg	Butterfield House
Perkins, Jean Zelman	Brockton	Commonwealth Circle T-32
Peterson, Ann Glover	Duxbury	Adams House
Pierce, Edward Robert	St. Stephen, N. B.	Butterfield House
Pigeon, Alfred Ernest	Ware	North College
Piusz, Stephen Paul	Chicopee Falls	Butterfield House
Ponte, Albert Gonsalves	New Bedford	Butterfield House
Poor, Harriet Elizabeth	Townsend	Adams House
Powers, Lael Hunt	Northboro	Adams House
Powers, Patricia Anne	East Braintree	Adams House
Putala, Eugene Charles	Millers Falls	Commonwealth Circle T-12
Putnam, Richard David	Leeds	24 Center St., Leeds

Quint, Earl	Newton Centre	North College

Race, Cheryl	Northampton	Adams House
Raynes, Everett Jones, Jr.	Chestnut Hill	Butterfield House
ReHill, Edwin Arthur	Melrose	Commonwealth Circle T-22
Reisman, Abraham Joseph	Springfield	382 North Pleasant St.
Rettie, Alfred James	Northampton	208 South St., Northampton
Richards, Ramona Irene	Worcester	Thatcher Hall
Rittenburg, Janice	Mattapan	Adams House
Roberts, Edith Delores	Amherst	223 Snell St.
Robinson, William Charles	New Bedford	Butterfield House
Rollins, Franklin Drisco	Chatham	Butterfield House
Rooney, Patrick Henry, Jr.	Boston	Butterfield House
Rose, Elizabeth Ann	Medford	Adams House
Ross, Betsy Elizabeth	Norwood	Adams House
Roth, Emanuel Mann	Roxbury	Butterfield House
Rubin, Lois	North Adams	Adams House
Ruggles, Louis Hooker	Hardwick	Butterfield House
Ryder, William Smith, Jr.	West Dennis	Butterfield House

Sagan, Eliot Howard	Winthrop	Butterfield House
Santoro, Jean Claudio	Franklin	Commonwealth Circle T-20
Saphirstein, Jerome William	Brookline	Butterfield House
Schmidt, Kenneth William	Adams	95 East Pleasant St.
Serex, Paul	Amherst	327 Lincoln Ave.
Shaban, Dmytro, Jr.	Willimansett	North College
Shatz, Chester	Revere	North College
Shea, James Francis, Jr.	Ware	Butterfield House
Shensky, Henry Leon	Greenfield	North College

Sherman, Max	Lynn	Commonwealth Circle
Siano, Thomas Frank	Greenfield	
Silverman, Joan Nancy	Lawrence	Adams House
Simons, June Patricia	Haverhill	Adams House
Sisson, Donald Everett	North Dartmouth	Butterfield House
Skahill, Elizabeth Jane	Middleboro	Adams House
Slavin, Bernard Melvin	Winthrop	Butterfield House
Slavin, Jerome Arthur	Springfield	Butterfield House
Sleeper, Elinor Jean	Haverhill	Adams House
Slowinski, Edwin Anthony	Greenfield	Commonwealth Circle T-13
Small, Jean Elizabeth	Southbridge	Adams House
Smith, Dorothy Caroline	East Lynn	Adams House
Smith, Ian Ballantyne	Worcester	Butterfield House
Smith, Marie Allene	Wollaston	Adams House
Smith, Oron Forrest	Springfield	99 East Pleasant St.
Smith, Paul	Maynard	North College
Smith, Philip Roger	West Springfield	Commonwealth Circle T-13
Smith, Sheldon Eugene	Plainville	Butterfield House
Smith, Zilpha Fasser	East Longmeadow	Adams House
Snow, Russell Elliott	Greenfield	219 High St., Greenfield
Souliere, Loretta Rose	Springfield	Adams House
Spear, Edgar Winfred	Everett	Federal Circle H-7
Stark, John Richard	Northampton	19 McClellan St.
Steinbeck, Edna Elizabeth	Amherst	East Pleasant St.
Stenard, Paul	Turners Falls	449 North Pleasant St.
Stoyle, Judith	Wollaston	Adams House
Strand, John	St. Paul, Minn.	Commonwealth Circle T-8
Struzziero, Edmund Joseph	Stoughton	Commonwealth Circle R-23
Sudhalter, David Louis	Mattapan	Tau Epsilon Phi
Sundstrom, George	Worcester	14 Allen St.
Swanick, James Thomas	Newton Centre	Butterfield House
Swindell, June Flora	Barre	Adams House
Sylvia, Theodore Raymond	Dartmouth	Commonwealth Centre T-33

Tadgell, Henry Allen	Belchertown	State St., Belchertown
Tague, William Henry	Amherst	West Street
Tannebring, Robert Southwick	Beverly	1136 North Pleasant St.
Taylor, John Alexander, Jr.	Saugus	North College
Taylor, Richard Archer	Abington	Butterfield House
Tetrault, Nellie Lillian	Pelham	R.F.D. #2, Amherst
Thomas, Dale Stephen	Cushman	Box 52, Cushman
Thomas, Vernon Theodore	Hadley	R.F.D.#3, Box 157, Amherst
Thompson, John George	Holyoke	Commonwealth Circle T-18
Toczydlowski, Albert Henry	Sunderland	Bridge St., Sunderland
Tonet, Earl	Northampton	North College
Traynor, Betty Anne	Swansea	Adams House
Treshinsky, Edward	Lawrence	Commonwealth Circle R-10
Trimble, Henry Gordon	New Bedford	North College
Trombley, Raymond George	Indian Orchard	24 Montgomery, Indian Orchard
Troy, William John	Pittsfield	Commonwealth Circle R-13
Trufant, Carolyn Cobb	North Carver	Adams House
Trullson, Anne Ruth	Brighton	Adams House
Turner, Janet Eleanor	Waltham	Adams House
Twarog, Loretta Catherine	Northampton	1 Kingsley Av., Northampton

Van Blarcom, Jacquelyn Ruth	East Lynn	Adams House
Vest, Abigail	Amherst	North Whitney St.
Vigneau, Francis John	Florence	Commonwealth Circle
Vrachos, Nicholas	Gloucester	Butterfield House

Waitkus, Calvin Joseph	Amherst	The Lord Jeffrey Inn
Walker, John Davidson	East Lynn	Commonwealth Circle T-15
Walker, Richard Alden	Gilbertville	Butterfield House
Wallace, Nancy Marie	Springfield	Adams House

Walz, Thomas Caroli	Belmont	Butterfield House
Wardwell, Richard Pneuman	Amherst	Pulpit Hill Rd.
Warner, Edna May	Sunderland	Main St., Sunderland
Warner, Mildred Edna	Sunderland	Main St., Sunderland
Washburn, Barbara Elinor	Montgomery	Adams House
Waters, Shirlie	Gardner	Adams House
Watson, Lawrence William	Arlington	Butterfield House
Weinswig, Sherwin Edward	Lynn	Butterfield House
Wells, John Joseph	Orange	Butterfield House
Wells, Mary Whitman	Greenfield	Adams House
Westcott, Donald Elvin	Springfield	Butterfield House
Westcott, Hope Goff	Rehoboth	Adams House
Westwater, Joseph James	Dorchester	Butterfield House
White, Charles Joseph	Worcester	Kappa Sigma
Wilczynski, Agnes Frances	South Deerfield	Adams House
Winer, Earl	Springfield	Butterfield House
Wing, William Paul	Holyoke	Commonwealth Circle S-4
Winn, William Walter	Brookline	Commonwealth Circle T-32
Winston, Norman Alfred	Northampton	Commonwealth Circle S-4
Winterhalter, Robert Philip	Ashland	Butterfield House
Winton, John Joseph	Stoneham	Butterfield House
Wolff, Peter	Springfield	Commonwealth Circle T-11
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Woodward, Marshall Murray	Segreganset	Butterfield House
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Wright, Patricia Ann	Watertown	Adams House
Wynn, Richard Peter	Holyoke	Commonwealth Circle R-6
Yergeau, Isidore Omaire	Chicopee	North College
Zaorski, Henry Joseph	Northampton	381 Pleasant St., Northampton
Zawacki, Henry Bernard	Hadley	Middle St., Hadley
Ziwotowski, Fred	Indian Orchard	Butterfield House
Zmaczynski, Boleslaw	Northampton	180 King St., Northampton

SPECIALS

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Fedeli, Mary	Amherst	Federal Circle E-5
Fitzpatrick, Mary Alice	Pekin, Ill.	Sunderland
Hawley, Janice Ellen	Amherst	10 Pleasant Court
Johnson, Joseph Harry, Jr.	Hynes, Calif.	"Inwood"
Sawyer, Rhoades Ferguson	Northampton	17 Ward Ave, Northampton
Shepard, May Louise	Beverly	15 Allen St.

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GIFTS AND BEQUESTS

For the information of those who may wish to make a gift or a bequest to this college, the following suggestion is made as to a suitable form which may be used.

There are a number of worth-while activities of the College which are handicapped by lack of funds and for which small endowments would make possible a greater measure of service to our students and to the Commonwealth. The religious work on the Campus is an example. This is now carried on in a very limited way by current private contributions. Further information concerning this and other activities in similar need will be gladly furnished by the President.

SUGGESTED FORM

"I give and bequeath to the Trustees of Massachusetts State College, at Amherst, Massachusetts, the sum of.................................. ....dollars."

(1) (Unrestricted)
"To be used for the benefit of Massachusetts State College in such manner as the Trustees thereof may direct."

or (2) (Permanent Fund: income unrestricted)
"to constitute an endowment fund to be known as the.................................
Fund, such fund to be kept invested by the Trustees of Massachusetts State College and the annual income used for the benefit of the College in such manner as the Trustees thereof may direct."

or (3) (Specific Purposes)
"to be used for the following purposes,"

(Here specify in detail the purposes.)

Bulletin

UNIVERSITY OF MASSACHUSETTS

STOCKBRIDGE SCHOOL OF AGRICULTURE

1947-1948

"No other human occupation opens so wide a field for the profitable and agreeable combination of labor with cultivated thought, as agriculture. I know nothing so pleasant to the mind as the discovery of anything that is at once new and valuable—nothing that so lightens and sweetens toil as the hopeful pursuit of such discovery. And how vast and how varied a field is agriculture for such discovery. The mind, already trained to thought in the country school or higher school, cannot fail to find there an exhaustless source of enjoyment. Every blade of grass is a study; and to produce two where there was but one is both a profit and a pleasure. And not grass alone; but soils, seeds, and seasons; hedges, ditches and fences; draining, drouths, and irrigation; plowing, hoeing and harrowing; reaping, mowing and threshing; saving crops, pests of crops, diseases of crops, and what will prevent or cure them; implements, utensils, and machines, their relative merits, and to improve them; hogs, horses, and cattle; sheep, goats, and poultry; trees, shrubs, fruits, plants, and flowers; the thousand things of which these are specimens—each a world of study within itself."

— ABRAHAM LINCOLN —
From address at Wisconsin State Fair,
Milwaukee, Wisconsin, September 30, 1859.

Note: President Abraham Lincoln signed the bill known as the Morrill Act, sponsored by Senator Justin Morrill of Vermont, in 1862 in the midst of the great Civil War. This law established agricultural colleges in every state of the country under federal aid.

Massachusetts accepted the provisions of this Act in 1863, indicating that "the leading object of the College shall be to teach subjects relating to agriculture and the mechanic arts so as to promote liberal and practical education."

Thus was born our modern system of agricultural education which is contributing so greatly to the health and welfare of this nation and of the world.

Bulletin
UNIVERSITY OF MASSACHUSETTS

Stockbridge School of Agriculture
1947-1948

The two year course in practical agriculture at The University of Massachusetts is known as The Stockbridge School of Agriculture, named after an early president of the University. Included herein are descriptions of the various courses offered, information concerning expenses, enrolment, regulations, etc. In the back of catalogue will be found forms for application and certificate of citizenship.

The University reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue.

UNIVERSITY BULLETIN
Amherst, Massachusetts

VOLUME XXXIX JUNE, 1947 NUMBER 3

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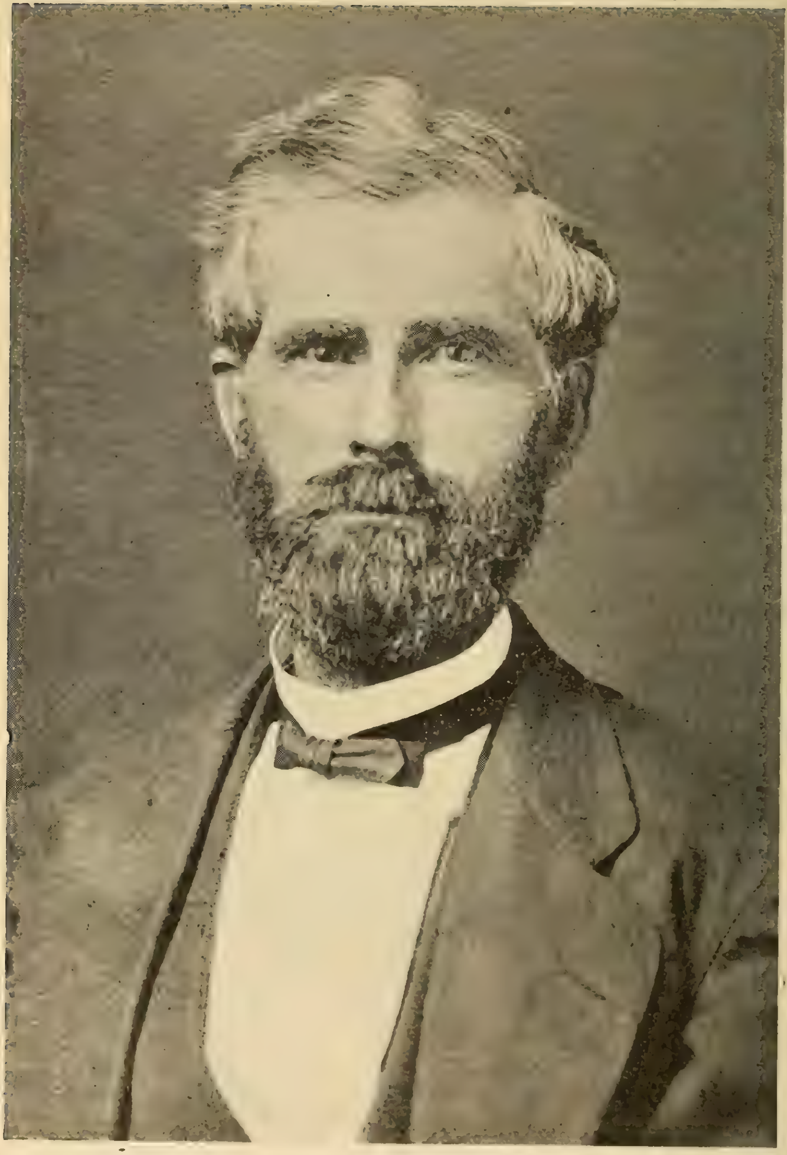

LEVI STOCKBRIDGE

1829 - 1904

First faculty member, and first professor of agriculture at the University of Massachusetts, in 1866. The plant food formulas worked out by him and given to the public in 1876 revolutionized the entire fertilizer business of this country.

FOREWORD

Twenty-nine years ago, in the first catalog of The Stockbridge School of Agriculture, then known as the "Two-Year Course in Practical Agriculture," these words were written to describe the purpose of such a pioneer program of study:

"A practical education is an investment that returns a dividend for life. It is a safe investment. The need for trained men and women in the work of agricultural production has never been so great. Each year of the war intensifies this need. With the close of the war it has been estimated that Europe will have to depend upon America for the next ten years for a much larger part of its food supply than ever before in the world's history. To increase one's productive power on the farm through education is not only good business but also a patriotic service in these days when so much depends upon the efficiency of men and women who produce the world's food."

When this statement was made by John Phelan, former Director of Short Courses (1918-1924) it applied to conditions existing here and abroad following World War I. Today these same words apply with even greater force to the conditions facing these United States after World War II. Adequate aid to the famine stricken areas of Europe, Asia, and Africa must be insured.

Since 1918 the University of Massachusetts has been providing for its citizens, a two-year vocational, non-degree program of courses covering the principal fields of technical and applied agriculture and horticulture. These courses have been enlarged and improved year by year until the peak pre-war enrolment was reached about 1939, with some 300 students registered. Then the inroads of war preparation and finally war itself drew away hundreds of prospective young farmers into the armed forces and to essential industries.

New Program for Post-War Period.—Today The Stockbridge School of Agriculture is organized and equipped to meet the needs of the discharged or disabled service man or woman, and of non-veteran citizens so far as housing and instruction facilities may permit.

Courses described in this catalog will be of particular value to veterans who have a sound reason for going into an agricultural business, and who fully realize the usual risks and difficulties that are bound to arise. To more fully acquaint them with both the opportunities and the limitations involved,—and the non-veteran needs the same information,—we are including here an excellent statement taken from the booklet "Agricultural Facts About Massachusetts" published by the Massachusetts Development and Industrial Commission. This was prepared by Louis A. Webster, a former Acting Commissioner of Agriculture of Massachusetts, 1942-44, who is a graduate of this University.

"**Living on the Land and off the Land.**—Farm living in Massachusetts, as elsewhere, offers an opportunity to live on the land in nature's environment and in a position to subsist to a large degree on crops of one's own production, or literally, "off the land".

Massachusetts also offers an active, though exacting, market for over a hundred million dollars worth of farm products annually. These products are now grown on 30,000 farms, covering 400,000 acres of cultivated land and a total area of 2,000,000 acres.

It should be pointed out at once that farm products, whether they are for home use or are produced by the carload, are not by any means manna from heaven. Successful production is the result of constant expenditure of physical and mental toil and the accumulation of generations of experience.

In spite of the industrialization of our State, the war years saw the greatest production of food in the whole three centuries of our experience. About

1,750,000,000 pounds of food are produced annually from the soil of Massachusetts. This fills 20% of the food needs of our people.

The soil of New England is not as easy to work on the average as in more typically agricultural sections of our country; but that very difficulty of operation has bred a determination to keep intact our heritage. We have probably lost less land by erosion and soil depletion than the nation has as a whole. For generations we have had to feed our soil, so that fertilization is a part of our farm practice and we are prepared to maintain and increase our soil fertility.

Due to our proximity to markets and to the size of our farms, it is naturally unprofitable to raise grain, beef, pork or fiber crops in large volume. It is desirable and necessary for us to specialize in the intensive production of such valuable crops as milk, eggs, fruit, vegetables and flowers. The crops we grow are the so-called "protective foods" that maintain our health and stamina in a vigorous climate and in an active and aggressive social order.

Massachusetts has some of the best purebred dairy herds in the world. We have some of the heaviest producing poultry flocks in existence; and our production of eggs has increased from 20,000,000 dozen in 1930 to 62,000,000 dozen in 1943. The Massachusetts apple crop totals about 3,500,000 bushels, which is just enough for our own use. 500,000 barrels of cranberries a year are grown in the Bay State, accounting for 60% of the nation's total. Massachusetts vegetable growers, large and small, produce 17,000,000 bushels of vegetables yearly. Opportunities for expansion will increase when thousands of local growers produce crops for immediate freezing in hundreds of thousands of private freezers.

Thousands of acres of Massachusetts land in the Connecticut Valley, on Cape Cod and in scores of other localities have only been scratched in their possibilities for food production. Massachusetts soil is ready to add stability to the economy of thousands of part-time farmers, and to produce thousands of tons more food for our four and a third million people.

Agricultural effort has been well repaid in Massachusetts, but wealth from the soil is not released without great skill and effort. The soil is a faithful silent partner but demands aggressive and constant cooperation."

AGRICULTURE IS BIG BUSINESS

Few farm people and comparatively few other citizens realize the importance of agriculture in this commonwealth of ours according to Willard A. Munson, director of the University of Massachusetts Extension Service.

Massachusetts is an urban, industrial state; 90 per cent of its people live in urban centers. However, 95 per cent of the land area is rural countryside. Here 10 per cent of the population lives, but only about one-third of these are actually engaged in agriculture. In spite of this small number agriculture is a big business. It is the third largest industry in the state, outranked only by leather and textiles. The farm industry in Massachusetts represents an investment of over $330,000,000 and in 1946 produced a gross income of approximately $175,000,000.

In addition to the 3 per cent engaged directly in agricultural production 3 to 4 per cent are in allied industries. In other words these people are serving farmers by obtaining farm supplies and services, and by providing marketing facilities. This means approximately 100,000 jobs with 3,000 to 5,000 replacements each year in order to maintain the industry.

CALENDAR
THE STOCKBRIDGE SCHOOL OF AGRICULTURE

1947

September 29, Monday	Freshman Registration
September 30, Tuesday	Senior Registration
October 1, Wednesday, 8:00 A.M.	First Semester begins for Freshman and Seniors
October 1, Wednseday, 11:00 A.M.	Opening Convocation
October 13, Monday	Holiday, Observance of Columbus Day
November 11, Tuesday	Holiday, Armistice Day
November 26-December 1, Wednesday, 12:00 M. to Monday, 8:00 A.M.	Thanksgiving Recess
December 19-January 5, Friday, 12:00 M. to Monday, 8:00 A.M.	Christmas Recess

1948

January 5, Monday, 8:00 A.M.	Classes resume
January 28-31, Wednesday to Saturday	Final Examinations
January 31, Saturday, 12:00 M.	First Semester ends
February 4, Wednesday, 8:00 A.M.	Second Semester begins
February 23, Monday	Holiday, Observance of Washington's Birthday
March 6, Saturday, 12:00 M.	Second Semester ends for Poultry Majors
March 8, Monday	Placement begins for Poultry Students
March 25, Thursday, 12:00 M.	Second Semester ends for all courses except Food Management and Forestry
March 29, Monday	Placement begins for all majors except Food Management and Forestry
March 25-31, Thursday, 12:00 M., to Wednesday, 12:00 M.	Spring Recess
March 31, Wednesday, 12:00 M.	Classes resume
April 19, Monday	Holiday, Patriot's Day
May 24-27, Monday to Thursday	Final Examinations
May 28-31, Friday to Monday	Commencement

THE TRUSTEES

Organization of 1946

Members of the Board

	Term Expires
Harry Dunlap Brown of Billerica	1947
John William Haigis of Greenfield	1947
Joseph Warren Bartlett of Boston	1948
Philip Ferry Whitmore of Sunderland	1948
Frank Learoyd Boyden of Deerfield	1949
Richard Saltonstall of Sherborn	1949
Ernest Hoftyzer of Wellesley	1950
Alden Chase Brett of Belmont	1950
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Martha R. Wright, B.S. *Instructor in English*	Chapel
John M. Zak, M.S. *Instructor in Agronomy*	Stockbridge Hall

MEMORIAL HALL

Erected in memory of the "Loyal Sons of Old Massachusetts"
who died in World War I.

"We Will Keep Faith With You Who Lie Asleep."

(inscription on east facade)

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

The Stockbridge School of Agriculture, organized in 1918, is the vocational non-degree department of the University providing training of post high school grade in agriculture, horticulture, and related business activities. In October 1946, two-year short courses were resumed after terminating in June 1943 when war conditions forced a change to a one year emergency program for 1944 and 1945.

Courses are planned to be of maximum use for the returning service man or woman who may be eligible for rehabilitation training under Public Law 16 because of war injuries. They will also be useful to the non-disabled veteran, eligible for further schooling under the G. I. Bill, Public Law 346, and who is interested in training himself for a successful agricultural business in the shortest possible time.

Eleven programs of study are offered, one of which must be selected by each student and completed as specified for the school diploma. The present list of offerings includes:

School of Agriculture

1.	Animal Husbandry	(see page 23)
2.	Dairy Manufactures	(" " 28)
3.	Poultry Husbandry	(" " 31)

School of Horticulture

1.	Arboriculture	(" " 35)
2.	Commercial Vegetable Growing	(" " 38)
3.	Fine Turf Maintenance	(" " 41)
4.	Floriculture	(" " 43)
5.	Food Management	(" " 46)
6.	Forestry	(" " 53)
7.	Fruit Growing	(" " 56)
8.	Ornamental Horticulture	(" " 60)

Since its organization at the request of the Massachusetts Legislature the school has registered over 2,500 students and graduated twenty-six classes numbering more than 1,800 members. Graduates of the School are making important contributions to the food supply of this state, and will continue to do so in the years after the war.

The value of this kind of concentrated, technical schooling, aiming directly toward preparation for a definite field of work, is amply demonstrated by the successful careers of our graduates.

It is estimated about fifteen hundred farms change ownership each year in Massachusetts due to death, infirmity of age, disabling accident, or, in some few cases, just plain inefficient management. Farms will always need to have reliable sources of skilled workers and owner replacements, as war food shortages have so clearly proved, if New England crop production is to be successfully maintained on an adequate scale. This is both a challenge and an opportunity to young men and women.

In the armed forces of our country more than eight hundred Stockbridge men saw service, largely from the classes of 1939 to 1943.

General Information

Entrance Conditions:—The school program is open to any student who is seventeen years old or over and who has completed at least an elementary school course or its equivalent. There are no entrance examinations.

The Stockbridge School of Agriculture is not intended to divert students at present enrolled in high schools. Such students should complete the high school course if possible, since standard of class work required is practically equivalent to junior college grade.

A graduate of a Massachusetts county school of agriculture or of an agricultural department of a high school in this state, may complete certain major courses for a diploma in one year, if he is recommended by the director of the school or the agricultural instructor because of outstanding scholastic and experience record. Statement and record must be submitted from the school with application. This arrangement applies only to the Animal Husbandry, Poultry Husbandry, Commercial Vegetable Growing, Floriculture, and Fruit Growing courses.

How to Enrol.—Civilians: Fill out application blank, Form I, page 75, giving all information requested. Be sure to indicate course you wish to elect. Mail this form, with citizenship certificate, Form II, on same page, to Director of Short Courses. If application is accepted you will be notified, and certificate of citizenship will be kept on file until you register. Neither tuition nor fees are required until the week of registration.

Veterans:—Only citizens of Massachusetts are eligible under present limited enrolments due to crowded facilities in most courses. Because many class quotas are filled well in advance of registration, it is urged that veterans arrange for a personal interview at the Short Course Office before filing application for entrance. If and when accepted for entrance, veterans must be sure to comply with the following rules:

(1) Bring photostatic copy of discharge at time of registration if Army or Marine Corps personnel. If Navy, bring photostatic copy of your 553 form. If you have Certificate of Eligibility and Entitlement from the Veterans Administration, bring that. (2) If you have had previous schooling or on-the-job training under Veterans Administration (not here), a Supplemental Certificate of Eligibility and Entitlement must be secured from the Veterans Administration Office having your record after filing with them letter of acceptance from this office. (3) If married, you must present a marriage certificate from city or town clerk's office. If there are any dependents you must be sure to file Veterans Administration Form 509 at your nearest Veterans Administration contact office. (4) If a disabled veteran seeking training under Public Law 16, you must file Veterans Administration Form 1900 received at time of pension award at any Veterans Administration Office.

Registration.—Registration for freshman will be held on Monday, September 29, and for seniors on Tuesday, September 30. All freshman students should be on campus from the day of registration until classes open on Wednesday, to meet required appointments for mental tests, physical examinations, and individual photographs for office records, and to have class schedules and individual programs explained.

Instruction.—Instruction is given by the University teaching staff through classroom teaching, laboratory exercises and practical work. The work of the classroom is supplemented by demonstration work in the barns, dairy plant, greenhouses, orchards, university gardens, engineering shops, quick freezing plant, canning plant, university forest, sawmill, and abattoir. The courses are planned to offer fundamental information, and to establish the underlying reasons as well as the special methods employed in the various operations. The combined advantages of university instruction and a university plant with all its varied resources are thus made available to young men and women training for successful business careers in agricultural vocations.

The usual University holidays are indicated on calendar, Page 5. First year Arboriculture students register two weeks prior to the starting of regular class work for preliminary training in the use of ropes and climbing. Freshman Poultry students complete only one month of the second semester because early placement is required by employers. Other freshman classes continue to April first, when most students are assigned to placement jobs, excepting Food Management and Forestry freshman who complete two full semesters. Class work is required at the University in the months of October to March inclusive; placement training for practical experience on jobs away from the University, on a wage basis, is required of all first year students from April to September inclusive, with exceptions noted.

Credit and Two-year Diploma.—In order to obtain a diploma a student must complete satisfactorily the entire program of study in which he has registered. A student failing to pass the requirements of summer placement training, after a suitable job has been assigned him, is not eligible for graduation until this deficiency is made up, and may not be allowed to enrol for the second year, if the Director of Placement Service considers his record to be unsatisfactory.

Graduation from the Stockbridge School of Agriculture does not fulfill the requirements for entrance in the University degree course, nor are credits earned during the course transferable regularly toward credit for a degree at this University.

Graduation Requirements.—No student will be graduated unless all bills due the University are paid on or before the Wednesday preceding graduation exercises.

Diplomas and letters of honorable dismissal will be withheld from all students who have not paid bills due the University, or legitimate bills due private individuals or business concerns.

A diploma will not be awarded to any senior, if arrears are reported by his fraternity. All bills for second semester, senior year, must be settled not later than the Wednesday before graduation.

Attendance at commencement sermon and graduation exercises are required of all seniors.

Seniors who have borrowed from the Goldthwait Loan Fund will have diplomas held as collateral by the University until they have paid up loans in full. This in no way interferes with the privileges of graduation.

Scholarship Regulations.—At the close of each semester students receive a formal report showing the standings given in the subjects pursued by them.

If a student's class average in any subject is below 50 per cent, he is failed (F) in the course without final examination privilege and must repeat course with the following class.

If the average of the class grade and the final examination is between 50 and 60 per cent, the student is thereby conditioned (#) and must repeat examination only for a pass grade.

Student grades will be recorded at the end of the seventh week of each semester and again at the end of the semester. The Faculty Committee will consider all questionable grades after each marking period, and instructors will note on grade reports the names of all students whose work is seriously deficient.

When a student's record indicates failures or uniformly poor work, the Faculty Committee may recommend a close supervision of his work by the faculty adviser in his major course, or, if his scholastic grades disqualify him from further work in the school, he may be asked to withdraw at any time.

A first year student who has deficient scholastic work at the end of the first semester in February may not be eligible for placement training until his work meets the required standard.

At the end of any semester a student who is failed or conditioned in more than one course or has conditions in more than two courses may be dismissed.

RULES AND REGULATIONS

Absences from Class

(1) No unexcused absences will be allowed from classes. (2) All excuses for absence shall be presented by the student in writing, and, if approved by the Director, an excuse card will be granted to be signed by the instructor. Excuse cards must be returned promptly to the office when properly signed. (3) Students presenting excuse cards covering absences are expected to make up all

work missed, to the satisfaction of the instructor. (4) Instructors are directed to reduce final grades five points for each unexcused absence occurring on a student's record at the end of any semester. (5) No excuses will be accepted at the Short Course Office unless presented within two days after the student returns to classes. (6) Two tardinesses unexcused shall count as one absence. (7) Absences from classes immediately before or after a holiday are not allowed except by special permission. (8) The Short Course Office requires all students to report at once any illness to the university physician, particularly if continued absence from class is likely to result from the illness. (9) Students failing to observe these rules are placed on probation, and may be asked to withdraw from the course if further violations occur.

Absences from Examinations or Tests

Any student who absents himself from an appointed examination without sufficient cause shall be given zero thereon. In such case he shall not be entitled to a make-up examination unless the Director so requests. A previously announced test may, at the discretion of the instructor, be regarded as a test or as an examination.

Student Expenses

Tuition.—A tuition fee of $50 per semester is charged students, residents of Massachusetts, enrolled in the Stockbridge School of Agriculture. Students who are not residents of Massachusetts are charged a tuition fee of $200 each semester. The tuition per semester, charged persons not citizens of the United States is $200 **Students entering from Massachusetts, unless of voting age themselves, are required to file a statement signed by either town or city clerk, stating that the applicant's parent is a legal resident of Massachusetts.** (See Form II in back of catalog.)

Variation in Charges for Three Major Courses

Food Management Course.—Placement jobs in the Food Management Course are not available until after June 1, and students have to complete two semesters of resident study each year.

Poultry Husbandry Course.—Because of earlier placement required on poultry farms, students complete only one and one-quarter semesters of class work here the first year.

Forestry Course.—Two full semesters work the first year followed by four months placement training.

Summary of Expenses:

	FIRST YEAR		FIRST YEAR (Hotel & Forestry Majors)	SECOND YEAR	FIRST AND SECOND YEARS
	First Semester	Second Semester	Second Semester		Field Trips
Tuition (Citizens of Mass.) ..	$50.00	$25.00	$50.00	$100.00	$15.00-52.00
(Poultry Majors		12.50)			
Board (University Cafeteria) ..	136.00	68.00	136.00	272.00	(Fees listed under Major Programs)
(Poultry Majors		34.00)			
Room Rent (Private Homes) ..	72.00	36.00	72.00	144.00	
(Poultry Majors		18.00)			
*Student Fees (Itemized below) .	16.75	11.50	17.00	36.00	
Books, stationery, etc.	35.00	35.00	35.00	70.00	
	$309.75	$175.50	$310.00	$622.00	$15.00-52.00
Poultry Majors		111.00			

These figures for board and room are estimates based on prevailing prices and are subject to change when and if conditions change.

*Student Fees:

	FIRST YEAR		FIRST YEAR (Hotel & Forestry Majors)		SECOND YEAR	
	First Semester	Second Semester	First Semester	Second Semester	First Semester	Second Semester
Athletics	$10.00	$ 5.00	$10.00	$10.00	$10.00	$10.00
Class Tax	1.00	1.00	1.00	1.00	1.00	1.00
Collegian	1.00	.50	1.00	1.00	1.00	1.00
Concert Fee	1.50	1.50	1.50	1.50	1.50	1.50
Shorthorn (School Yearbook)	2.00	3.00	2.00	3.00	3.00	5.00
Stockbridge School Activties	.50	.50	.50	.50	.50	.50
Student Handbook	.75	—	.75	—	—	—
	$16.75	$11.50	$16.75	$17.00	$17.00	$19.00

Tuition and fees of approximately $67.00, are payable in full at the Treasurer's Office not later than one week after classes begin for the semester. According to adminstration ruling, students not paying semester accounts when due are suspended from classes. All checks payable to the University should be made out to Treasurer, University of Massachusetts.

A student who withdraws from the University for any reason before a semester is half completed, will have refunded to him one-half the fees paid for that semester, but one who leaves after completing more than the half semester will be allowed no rebate of fees.

The placement training period between the first and second year usually enables a student to earn from $500 to $1,000 depending upon his skill and general ability, and the type of work. This will pay a large part of the second year expenses.

Prospective students should understand that the above estimates cover expenses which may be called strictly University expenses, and that there are other financial obligations voluntarily assumed by students which they should expect to meet. Such expenses vary from $28 to $36 a year. Additional financial responsibility is also assumed by students joining fraternities or entering into other social activities of the University. Besides the amount necessary for clothes and traveling, the economical student will probably spend between $450 to $500 for the first year of one and one-half semesters in residence, and $550 to $600 for the second year of two semesters.

Rooms

Dormitory rooms are available only to students of the four year course. Private homes in the town furnish the chief source of rooms for Stockbridge students under assignment by the University Housing Office. Students are notified prior to registration of their location and should not make earlier inquiry.

Board

Stockbridge freshmen are not required to secure meals in the University cafeteria, but can do so if it is more convenient.

A number of public restaurants or dining rooms are located close to the University where most students arrange for meal service, usually approximating $1.50 a day, with allowances made if student goes home on week-ends, class schedule permitting.

A new student should sample the various places to find one suited to his needs, where he can meet with congenial members of his class group.

Books and Supplies

For the convenience of students the University maintains a store service in North College. Here all textbooks may be purchased at cost plus transportation charges. Students are informed at the first class session in each course what books are required and must secure individual copies according to order list sent in by instructor.

There is little opportunity to secure secondhand books because most students find the texts assigned of value to retain as reference sources after completing a course.

Student Aid

Students desiring any form of financial aid from the university including scholarship, employment, or loan, are required to file applications with the Student Aid Committee not later than June 10 of each year. Incoming freshmen are allowed an extension of time.

These application forms are used to determine the comparative need of the applicants and are passed on by the Student Aid Committee. No student is eligible for any kind of financial assistance from the University unless he or she has filed the required form and has been certified as deserving by the Student Aid Committee. Applications forms may be secured at the Placement Service Office, South College.

Self Help.—The University does not encourage students to enter without money in the expectation of earning their way entirely. The student will find it better to work and accumulate sufficient funds before coming to the University, or else to take more than two years in completing his course.

No student should undertake work that interferes with his studies, and students should understand that no one may receive a large amount of work at the University.

First year students particularly should not risk failure in their beginning studies at Stockbridge by taking on such extra work until they have, at least, tested themselves in the study program of the first semester. Certainly, it is advised to proceed cautiously in combining both extra work and athletics at the same time, if the student's scholastic record is at all questionable.

The Vincent Goldthwait Loan Fund.—This fund was established by Dr. Joel E. Goldthwait, U. of M. 1885, of Boston, as a memorial to his son who died in 1922 during his junior year at Harvard. Its purpose is to aid worthy senior students who find it difficult to secure adequate finances to complete their final year. Only seniors needing a supplement to funds already available will be considered. Amounts in excess of $200.00 are rarely granted and most loans range from $50 to $150.00.

A regular promissory note must be executed, endorsed by parent or guardian, and repayment may be made within any reasonable period after graduation up to one year. There is no interest charge.

Wilbur H. H. Ward Scholarships.—The Wilbur H. H. Ward Fund is administered by a Board of Trustees independent of the University. Applicants for these scholarships should write to Sumner R. Parker, who may be addressed at the University. They are available only to Hampshire County boys.

Student Employment Projects

Part-time work is available for a limited number of candidates. The type of work to which students are assigned consists of the following:

Clerical and office, building and grounds maintenance, farm, greenhouse and orchard duties, helpers in livestock and cattle barns, and other miscellaneous types.

General Exercises

Assembly exercises are held weekly on Wednesdays, 11:00-12:00 M., and serve to bring together all Stockbridge students for a general program dealing with matters of interest to the University and the School. Among speakers who appear from time to time are the President of the University, members of the University Staff and others who have interesting subject matter to present. This weekly assembly also enables announcements concerning students and student affairs to be presented, and permits class presidents to make advance reservations for business meetings when necessary. **No unexcused absences from this exercise are allowed.**

Two assemblies each month are used for special song practice to train all students in both school and popular songs.

Student Activities

A large number of student organizations furnish opportunity to students for work and leadership.

Memorial Hall is the center of student activities and contains offices for the various student organizations, including the Stockbridge School Student Council. On the first floor are located a lounging room, the Memorial Room, and the offices; in the basement, bowling alleys, pool and ping pong tables; and on the second floor an auditorium for meetings and dances. This building was erected by the alumni, students, faculty, and friends in honor of the fifty-one "Aggie" men who gave their lives in World War I.

The Stockbridge School Council is composed of representatives of the first and second year classes. This body serves as a general committee on student government and helps to maintain the best traditions and customs of the School.

A student yearbook called "The Shorthorn" is published annually by the members of the graduating class, and is usually issued in June. All students subscribe to it.

For those students who play musical instruments there are opportunities with the University Orchestra and the University Band.

There are two Stockbridge fraternities for men in the student body, Alpha Tau Gamma and Kappa Kappa, both owning houses, serving as social and residential centers for their groups. For the small group of women students there is a Tri Sigma Club.

A Stockbridge Honorary Scholastic Society called "Stosag" was established in 1935 to encourage high scholarship. Students whose records show no grade below 70 in any subject and whose average for the first three semesters is 85 or better are elected to membership in the society each June. Engraved certificates are awarded to members of the graduating class who have achieved this distinction.

Athletics and Physical Education.—The School has it own separate athletic program with regular schedules in football, basketball, ice hockey, cross-country and winter track. Sweaters and insignia are awarded to team members and managers in these sports. The official insignia is the letter S.

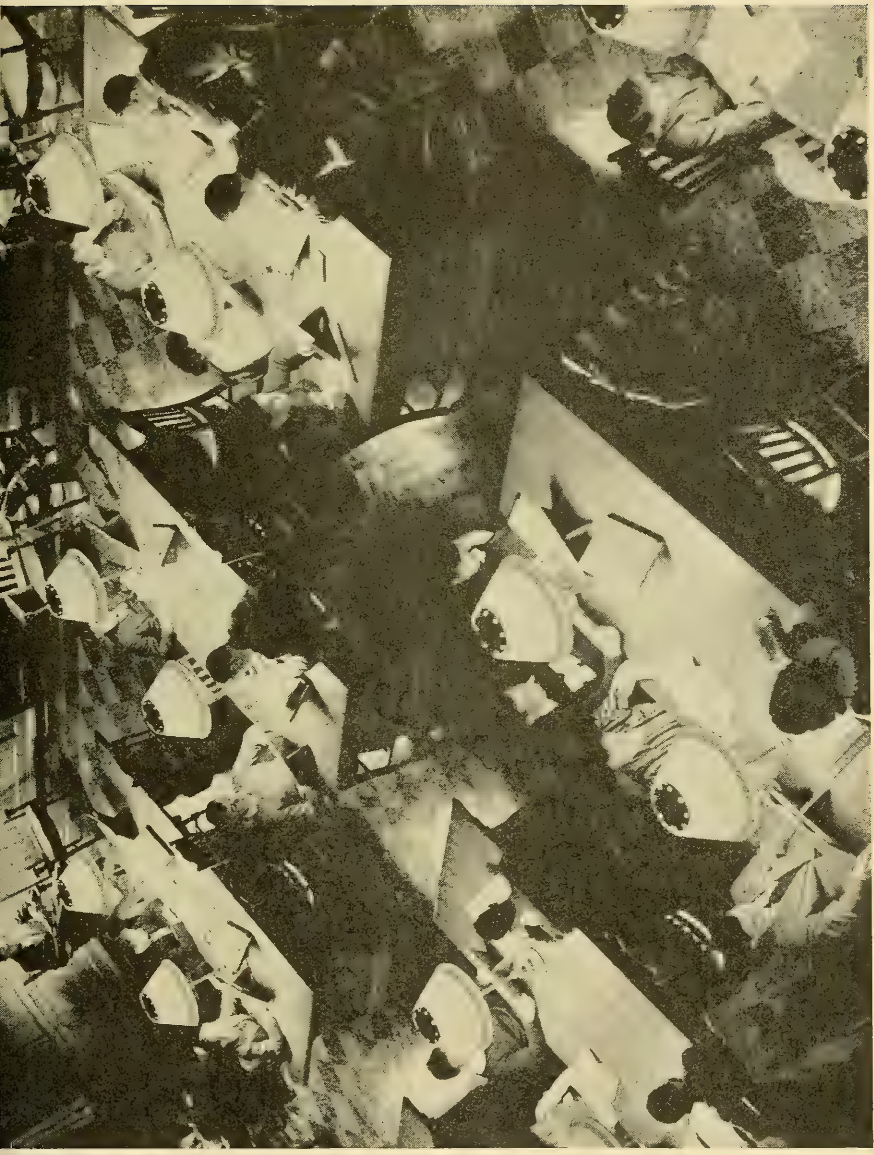
The football team plays a schedule of 6-7 games with preparatory school teams. The basketball team plays a 12 game schedule; the cross-country team usually runs 3 races, while 2 or 3 meets are scheduled for the winter track squad. Ice hockey affords 6 to 8 games depending on the weather.

Due to the fact that freshmen are on placement training during the spring term which leaves only seniors available, no regular team is maintained in baseball. Men desiring to play are organized into teams and an intramural league is arranged.

This athletic program is entirely under the supervision and direction of the Physical Education Department of the University and coaches are provided for all sports. Instructor Stephen R. Kosakowski, director of the Stockbridge physical education work, is coach of football, basketball, and has charge of the spring recreation program. Assistant Professor Llewellyn L. Derby, coach of the varsity track team, has charge of the cross-country and winter track squads.

All students are urged to participate in some sport each semester, but first year students should be sure all studies are well maintained. No squads are reduced by eliminating the inexperienced players, and everyone is given an opportunity to play in games. The football squads in the past have consisted of approximately 50 candidates. Games have been scheduled for both the second and third teams so that every man on the squad has participated in an outside scheduled game. Both the first and second teams in basketball have regularly scheduled games and an intramural league schedule is arranged for those not playing on the first squad.

Every care is exercised to guard against men overtaxing their strength in any sport or game to the detriment of their health. No man whose physical condition is at all questionable is allowed to play on the teams. A careful check is maintained by required physical examinations for all students given by the



Library Reading Room

University physician at the opening of the school year. A second examination is made of each man before permission is granted to participate in any sport.

Students also subscribe to the university varsity games and have attendance privileges for varsity sports on the campus.

Class work in physical education for men not on athletic squads is required for both seniors and freshman during the first semester. This consists of 2 class periods a week. The object of this course is to give the men some knowledge of games which may be of value to them in after school days, as well as to give every man an opportunity to develop sufficient control over his body to enable him to get pleasure from physical activities and to establish correct health habits.

The freshmen receive instruction in softball, touch football, golf, and swimming. Men may elect football or cross-country, instead of the regular class work. The seniors take up volleyball, badminton, archery, and swimming. They may also elect football or cross-country. The classes are organized into teams which compete against each other with much rivalry. Students are expected to wear old clothes during the play period, and shower baths are required at the close of each class period.

A physical education building containing a swimming pool, a great indoor cage 150 by 180 feet for all kinds of sports and games, and complete locker room and shower bath facilities provide ample equipment to carry out this program. Individual equipment is supplied to all members of the football, hockey, basketball, cross-country, and track squads.

STUDENT RELATIONS

The customary high standard of university men in honor, manliness, self-respect, and consideration for the rights of others constitutes the standards of student deportment.

Any student known to be guilty of dishonest conduct or persistent violation of rules must be reported by the instructor to the Director for discipline.

The privileges of the university may be withdrawn from any student at any time if such action is deemed advisable.

It should be understood that the university, acting through its President or any administrative officer designated by him, distinctly reserves the right not only to suspend or dismiss students, but also to name conditions under which students may remain in the institution. For example, if a student is not doing creditable work he may not only be disciplined, but he may be required to meet certain prescribed conditions in respect to his studies, even though under the foregoing rules his status as a student be not affected. The same provision applies equally to the matter of absences.

Similarly, also, it applies to participation in student activities. Though this will ordinarly be governed by the rules as already laid down, yet if in the judgment of the university authorities a student is neglecting his work on account of these activities, the privilege of participating in them may be withdrawn for such time as is considered necessary. Moreover, it may be withdrawn as a punishment for misconduct.

HEALTH SERVICE

The University endeavors to safeguard the health of all students while on the campus and for this purpose maintains a Department of Student Health, staffed by two physicians, four resident registered nurses, and operates a group of three Infirmary buildings.

(1) Physical examination by the Health Service is required of all undergraduate students annually, or more often if indicated. This examination is given to freshman during matriculation week. *Evidence of a* SUCCESSFUL *smallpox vaccination is required.*

(2) The Student Health physicians have offices in the Physical Education building and in the Out-Patient Building, where they may be consulted during university hours.

(3) The Infirmary consists of three buildings on East side of campus, near Marshall Hall, one for bed patients, one for contagious cases, and one for out-patient cases, where the out-patient clinic is conducted daily by one of the Student Health physicians.
Out-patient hours are: Week days 8:30-11:30 a.m., 3:00-5:00 p.m. Saturdays 8:30-11:30 a.m.

(4) Students are urged to consult the resident physicians at the first sign of physical disorder, or even for minor accidents. Many severe illnesses and much lost time can be avoided by early or preventive treatment.

(5) A Trustee ruling grants free time in the Infirmary — when necessary for treatment — up to seven days in the school year. This free time applies to regularly enrolled undergraduate students only. For time in excess of seven days or for other bed patients, a charge of $2.00 per day is made against the patient.

(6) In addition to the charges specified in paragraph 5, the following additional expenses will be charged to the patient.

(a) *Nurses.* — In case a special nurse is required for the proper care of an individual the services and board of this nurse will be paid by the patient. Such a nurse will be under the general supervision of the chief resident nurse.

(b) *Professional Service.* — If a student requires continuous medical attention by a physician, he may be required to select a town physician and becomes responsible for fees charged by that physician.

(c) *Supplies.* — Special medical supplies prescribed by a physician will be charged to the patient.

GOODELL LIBRARY

This fine building completed in 1935 houses the University Library. This library contains one of the best collections in agriculture and related sciences in the country, with special strength in entomology, botany, chemistry, horticulture, landscape architectiure, soil science and animal husbandry, but with considerable collections, also in literature, history, economics and sociology. There are over 143,000 bound books, and over 50,000 classified pamphlets giving most recent information. The periodical file contains over 500 current magazines, both scientific and popular, and a careful selection of periodical publications of learned societies. The Library is unusually rich in files of journals and publications of Experiment Stations and learned societies. The Library is open from 7:45 A.M. until 10:00 P.M., Monday through Friday, and from 7:45 A.M. until 5:00 P.M., Saturdays. Sundays the Library is open from 1:45 to 4:45 P.M. and 7:00 to 9:30 P.M.

The building is named in memory of Henry Hill Goodell, President of the University from 1886 to 1904 and Librarian from 1886 to 1898.

AGRICULTURAL OPPORTUNITIES FOR WOMEN

Agriculture is a field in which women have always found some opportunity. There are women farming independently, in all branches of agriculture. As a rule poultry raising, small fruits and vegetable growing and floriculture, seem to offer women an easier opportunity than dairy, stock and general farming. Women are also finding some paid positions which include farm and estate workers and managers, garden service workers and agricultural officers in state correctional institutions.

For the woman or girl whose home is already upon the farm the opportunity is exceptionally good. With the help of an agricultural education there are open to her many means of increasing her own or the farm income. With the knowledge of farm life which she already possesses, and with the possibility of securing occasional help from her family, she may be able to carry on and develop a profitable enterprise of her own. The Stockbridge School of Agriculture will afford to the women who wish to engage in farming the practical training which they will need to fit them for their work, and will open to them new doors of opportunity. The particular problems which women engaged in farming will have to meet, and the special lines of farming in which they will have favorable opportunities, will be considered in a series of conferences.

Women who are interested in taking agricultural courses should correspond with Miss Margaret Hamlin, Placement Officer for Women.

POSITIONS

The University does not guarantee positions to students registered in any of its courses, but through the Placement Service it has an opportunity to recommend students for a large number of positions. A record is kept of each student's work and experience, and of his success in positions for which he has been recommended after he has finished his course. Opportunities for trained men and women, especially those who have had farm experience, are good.

A student desiring a recommendation from the university must meet the following conditions: —

(1) He must be of good character.
(2) His previous record must be good.
(3) His work in all courses must be satisfactory.

Students who have not previously had a considerable amount of practical experience cannot, as a rule, be recommended for positions of responsibility. This is especially true of the better positions for which managers or superintendents are wanted.

VOCATIONAL PLACEMENT

The work of locating first year students for apprentice training from April to October, after the resident term is completed, is in charge of the Director of Placement Service. Placement training for women students is in charge of Miss Margaret Hamlin of the Placement Office. Every effort is made to secure satisfactory positions affording the kind of training desired by the student, but the Placement Office cannot guarantee to place every student for training, when positions are not available. In normal times placement positions are secured for all students who are eligible under these conditions.

1. Positions are secured that will enable a student to gain practical experience in his particular vocation.

2. A student desiring placement at home may arrange for such assignment if the Director of Placement approves. As a rule, it will be found more desirable for a student to spend this six months away from home even though he plans to be employed there after finishing the course. This statement is based on the experience of students who have already taken the course.

3. If credit is to be secured for the six months' placement training the following rules must be carefully observed.

Rules for Stockbridge Students on Placement

1. The student must interview the Director of Placement early in his first year in order that his qualifications, the type of work he wishes to pursue, and his general fitness may be determined.

2. No final arrangement for placement training may be made by the student himself until the Director of Placement has been consulted.

3. Students are required to complete their period of training without unnecessary absences.

4. No transfers are to be made by a student if he is to receive credit, until permission has been had from the Director of Placement.

5. A position may not be given up by the student until the Director of Placement has been notified.

6. A monthly report must be furnished on the form supplied, and submitted not later than the fifth of each month during his training period.

7. A student whose grade of work is regularly poor (below a 70 rating) in the classes of his major subject will not be eligible for placement training, unless recommended by the department in charge of his major work.

8. When a student fails to complete the requirements of his placement training with a satisfactory grade, he is not allowed to take the work of the second year.

9. All students are given a thorough physical examination by the Department of Physical Education at the beginning of each university year. Any disabilities liable to affect the student's placement work are noted, and, if of a serious nature, recommendations for corrective measures are supplied. Parents should understand that most kinds of agricultural work require a well-balanced combination of brawn and brain. No student whose physical condition is questionable will be accepted for placement training without a physician's certificate, and parents' approval.

It should be clearly understood by both employer and employee that the same energy, regularity and general conduct will be expected of the student during his period of placement training as is expected in his work in classes and on the campus.

It should also be noted that this six months' experience is educational in its nature. Students are expected to earn and receive a reasonable wage, but the purpose of the training is the experience gained rather than the wage earned. The scale of wages may vary in different localities, but each man's ability is given very careful thought, that he may obtain a wage that is fair to him. In the event of any misundertsanding the supervisor should be immediately informed.

THE LOTTA AGRICULTURAL FUND FOR GRADUATES ENTERING AGRICULTURAL PURSUITS

(Prepared by the Lotta M. Crabtree University Committee with the approval of the Trustees of the Lotta M. Crabtree Estate.)

A 1940 decision of the Probate Court of Norfolk County made available the Lotta M. Crabtree Agricultural Funds to graduates of the Stockbridge School of Agriculture, as well as to graduates of the four-year course at the University of Massachusetts. This decision does not, however, lessen the restrictions or change the purposes for which these funds can be used for farm financing.

The purpose of loans from these funds is to assist meritorious graduates who are without means in establishing themselves in agricultural pursuits. These loans are made without interest or service charges other than the cost of title search and legal papers. They must, however, be paid back in full amount within a reasonable length of time and there are certain restrictions on their use.

To avoid disappointment on the part of applicants and save unnecessary work and expense in investigating applications for loans, there are certain questions that the prospective borrower should answer for himself before making application for a Crabtree loan. The more important of these follow:

1. Am I thoroughly qualified, both in training and experience, to successfully manage the project that I am planning? Experience on a farm or in the agricultural enterprise contemplated, in addition to classroom training is one of the first essentials for success. If such experience is lacking, it is usually best to delay application for a loan until acquired.

2. Is the project that I seek assistance in financing really an "agricultural pursuit"?

3. Am I using these funds entirely to establish myself in business or are they being used in part to benefit some other person who is not a graduate of the University of Massachusetts or the Stockbridge School? This question sometimes arises in connection with "family" and "partnership" propositions. It has no reference to a wife or other dependent but no part of the loan can be used to finance a person who is not a University or Stockbridge graduate.

4. Am I using these funds for refinancing present debts? The purpose of these loans is to "establish" rather than "reestablish" persons in agricultural pursuits. They cannot be used for retiring present debts.

5. Will the amount that I can hope to borrow from these funds adequately finance the enterprise that I am planning to engage in? Lotta Agricultural

loans are used mostly to supplement other forms of financing rather than for complete financing of farming operations. Reasonably definite plans for the other financing, which the loan is intended to supplement, should be worked out before applying for a Crabtree loan.

6. What can I offer as security to adequately safeguard this loan? A Crabtree loan, like any other loan, should be safeguarded against possible death or financial failure of the recipient. While character and personal integrity of the applicant are large factors in decisions relative to granting of a loan, adequate security should be provided as far as possible.

7. Can I amortize my debt payments and other financial obligations so that I can repay this loan within a reasonable period of time? Most Crabtree loans are made under definite agreement to repay within a relatively short period of years. The Crabtree applicant should therefore make certain, barring calamity, that his income above necessary operating and living expenses will be great enough to allow annual, semi-annual or monthly payments on this loan as well as on other debt obligations that he may be carrying.

8. Will this loan actually help me to make more money or will it merely delay the time and increase the burden of final financial reckoning? The answer to this question and also to No. 7 involves careful budgeting and planning ahead. Unless an applicant can show on paper by carefully projected plans and budgets of expected receipts and expenses that he will benefit by a loan, he is likely to have difficulty in repaying it.

Applications for the "Lotta Agricultural Fund" should be addressed to the Trustees of the Lotta M. Crabtree Estate, 619 Washington Street, Boston, Massachusetts, or may be secured at the Short Course Office or the Placement Office at the University. The Director of Placement has been designated as the Stockbridge representative on the faculty committee which makes approval recommendations to the Crabtree trustees. Decisions regarding the granting of a loan rest entirely with the Trustees under the terms of Miss Crabtree's will.

ANIMAL HUSBANDRY

Professor Rice, Associate Professor Foley, Assistant Professor Blaisdell, Assistant Professor Cowan, Assistant Professor Hale

Animal Husbandry, in this School, refers to the breeding, feeding, and management of dairy cattle, beef cattle, horses, sheep and swine.

The purposes of the courses in Animal Husbandry are (1) to provide the student with a thorough understanding of the basic principles involved in the creation of more efficient and more beautiful animal types, said principles being those involved in the biology of animal reproduction, the chemistry of animal growth and feeding and the economics of livestock production; (2) to show the practical workings of these principles in the selection, feeding and management of the various classes of livestock and (3) to provide practice in judging, fitting, showing and general management of livestock as well as the production of milk and other products, and the slaughtering, curing and marketing of meat products.

The University dairy herd comprises about 150 animals in the Ayrshire, Guernsey, Holstein, Jersey and Milking Shorthorn breeds. In beef cattle, we maintain a herd of Aberdeen-Angus; in sheep, flocks of Southdowns and Shropshires; in swine, a herd of Chester Whites; and in horses, a band of Percheron mares and stallions as well as one or two stallions and several mares in the light horse breeds. Modern barns house the above animals and modern equipment is available for practice work with them.

The University Farm of about 400 acres is handled primarily as a live stock farm, producing, pasture, hays, silages and some grain crops for live stock feeding. The farm is equipped with the most up-to-date machinery for agricultural production. The farm and barns are our laboratories, the animals and accessories our equipment.

Trains for Jobs Like These:

Owners and operators of dairy farms; farm managers; superintendents or foremen; herdsmen in various kinds of livestock enterprises; dairy herd association testers; inseminators in artificial breeding units; businesses allied to agriculture such as farm cooperative fieldmen, sales and service men for feed, fertilizer and farm machinery companies.

Field trips will be required during the two years at an estimated cost of $40 per student.

Special equipment needed for students in Animal Husbandry are: knives, boots, and wash suits, at an estimated cost of $15.

Animal Husbandry
First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Agricultural Economics S3 (Marketing)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Dairy S1 (General Dairying)
Farm Management S3 (Efficiency in Farming Operations)
Hygiene S1 (Required of women students)
Physical Education S1 (Required of men students not participating in football; also required of women students.)
Milking, Harnessing and Teaming
(Practice periods only, by arrangement)

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agricultural Engineering S4 (Farm Shop)
Agronomy S2 (Fertilizers)
Animal Husbandry S2 (Principles of Feeding)
Fruit Growing S10 (General Course)
Poultry Husbandry S10 (General Course)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S1 (Farm Motors)
Animal Husbandry S3 (Animal Breeding)
Animal Husbandry S5 (Farm Meats)
Business English S1
Farm Management S1 (Farm Management and Accounts)
Public Speaking S1
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S10 (Farm Structures and Drainage)
Agronomy S4 (Field Crops)
Animal Husbandry S4 (Live Stock Production)
Animal Husbandry S6 (Dairy Cattle and Milk Production)
Public Speaking S2
Veterinary Science S2 (Applied Animal Sanitary Science)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

ANIMAL HUSBANDRY S-1. (Types and Breeds) I.

This course considers the origin, history, development, characteristics and distribution of the breeds of cattle, sheep, swine and horses commercially important in the United States. The conditions to which each class of live stock and each breed seem best adapted will be discussed. Laboratory work consists of judging and evaluating as many rings of dairy, dual-purpose, beef cattle, sheep, swine and draft horses as time permits.

3 class hours and 1 2-hour laboratory period a week. Credit, 4.

ASSOCIATE PROFESSOR FOLEY.

ANIMAL HUSBANDRY S-2. (Principles of Feeding) II.

This course includes a study of the organs of digestion, the digestion and absorption of feeds, the classification and characteristics of the common feedstuffs, the utilization of feeds in maintenance, growth, fattening; meat, work and milk production. Some time will be spent on the importance of minerals and vitamins. Methods of calculating balanced rations; feeding standards, and feeding practices will be studied.

4 class hours and 1 2-hour laboratory period a week. Credit, 5.

ASSISTANT PROFESSOR COWAN.

ANIMAL HUSBANDRY S-3. (Animal Breeding) I.

This course is planned to acquaint the student with the facts of reproductive physiology, with the facts and theories of modern genetics, and to show how such knowledge may be utilized through genetic analyses, selection, and systems of breeding for the creation of more beautiful and more efficient animal types.

3 class hours and 1 2-hour laboratory period a week. Credit, 4.

ASSOCIATE PROFESSOR FOLEY AND ASSISTANT PROFESSOR COWAN.

ANIMAL HUSBANDRY S-4. (Live Stock Production) II.

This course deals briefly with the problems of selection, breeding and care of horses, beef cattle, sheep, and swine, with emphasis on their place in New England agriculture. Attention is given to the general situation, equipment, feeding, management problems and disease control. The laboratory periods consist of practice in fitting and showing, shearing, docking and castrating. As a part of the laboratory work, each student will be assigned an animal for fitting and showing in the "Little International" which will be held on a Saturday in March. Trips to other purebred live stock establishments in New England will be required during the semester. The cost of transportation will not exceed $5.00.

Prerequisites: Animal Husbandry S-1 and Animal Husbandry S-2.

2 class hours, 1 2-hour laboratory period and 1 4-hour laboratory period a week. Credit, 5.

Assistant Professor Hale.

Animal Husbandry S-5. (Farm Meats) I.

This course includes a survey of the packing industry and follows the product (i. e. beef, pork, lamb and veal) from the feed-lot to the consumer's table. Practice is afforded in classifying animals as to market class and grade and in slaughtering, dressing, and cutting beef, pork, lamb and veal. At the end of the course a trip will be taken to several large packing houses in Boston consuming one day and costing about $10.00. Textbook: Ziegler, "The Meat We Eat."

Special equipment needed for this course includes knives, boots and wash suits, estimated cost $15.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Hale.

Animal Husbandry S-6. (Dairy Cattle and Milk Production) II.

For Seniors.—This course treats all phases of dairy cattle production and management. The student is provided with an opportunity to study and seek the solution to the various economic, nutritional, genetic and managerial problems concerned in successful dairying. Lectures will be supplemented with talks by specialists in the various fields. Laboratory will consist of a detailed study of methods used on the college farm, with practice in the various skills necessary for the herdsman or showman.

Trips to purebred live stock farms in the state for the purpose of inspection and advanced dairy cattle judging will be required on five Saturdays during the spring semester. The cost for transportation will not exceed $15.00.

3 class hours and 2 2-hour laboratory periods a week. Credit, 5.

Associate Professor Foley.

Animal Husbandry S-7. (Food Management Meats) I.

For Seniors in the Food Management Course. This course is designed to impart a knowledge of the fundamental principles involved in judging, purchasing, and efficiently utilizing meat and meat products. Laboratories will involve actual slaughtering, dressing, wholesale and retail cutting and preparation of by-products. Judging practice will be secured in a near by packer cooler and at the end of the course a one day trip costing $10.00 will be scheduled to several large packing houses in Boston. Textbook: Ziegler, "The Meat We Eat." Special equipment needed for this course includes knives, boots, and wash suits—estimated cost $15.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Hale.

Animal Husbandry S-9. (Special Dairy Cattle Course) I.

For Dairy Manufactures, Poultry Husbandry and Fruit Growing Majors.—This course considers briefly the origin, history, development, characteristics and distribution of the six major dairy and dual purpose breeds of cattle. The course will cover the basic principles of dairy cattle feeding, including feeding standards and the calculation of balanced rations. The principles of genetics and the art of breeding better dairy cattle will be emphasized. Management of the dairy herd for the health standpoint and for profitable returns will complete the lecture portion of the course. Laboratories will be devoted to judging, identification of feeds, and various managerial problems. Textbook: Peterson, "Dairy Science."

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

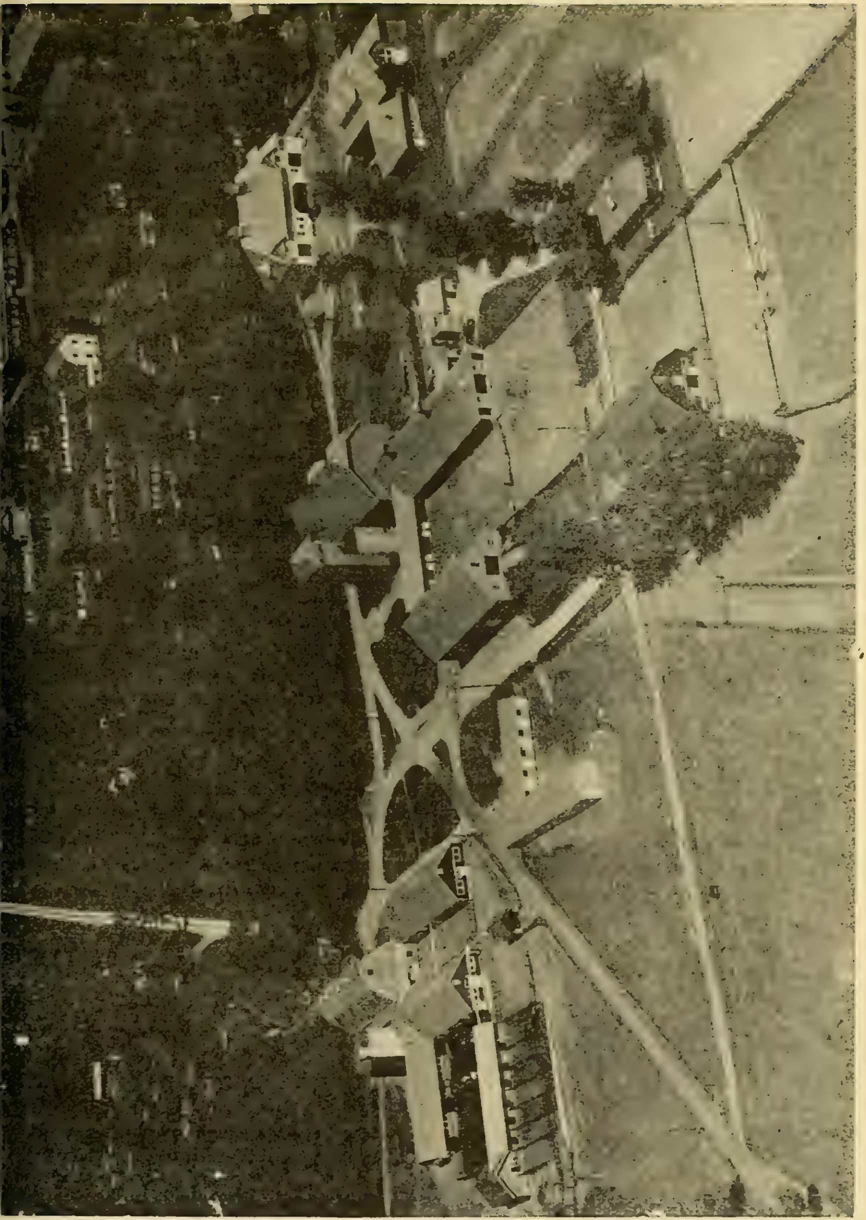
ASSOCIATE PROFESSOR FOLEY.

Note—Every student in this course must qualify in milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

The past 30 years have brought social and technological changes so extensive that they are revolutionizing agricultural production and rural living. The output per person in agriculture in Massachusetts has increased over 50 per cent. In fact, innovations during these years are doing more to increase the efficiency and reduce the cost of farm products, than all the improvements of the previous 300 years put together.

The application of mechanical power to operations relating to land improvement and crop production has increased the output of man's effort tenfold.

These changes have resulted, in large part, from greater emphasis on education and research in agriculture. The net effect of these changes has been to extend the farmers' contacts into new and more complex relationships, and to require progressively higher levels of scientific knowledge and technical ability for successful farm operation. Continued progress must come through even more intensive and widespread education and research in the future. This means opportunity for future generations, properly trained in the sciences relating to agriculture.



Aeroplane View of the University Farm

DAIRY MANUFACTURES

Professor Hankinson, Assistant Professor Lindquist
Assistant Professor Nelson

The Dairy Manufactures course is designed to fit men for positions with market milk concerns, creameries, ice cream plants, and specialized dairy farms.

All dairy manufacturing courses are given in the dairy building (Flint Laboratory), a modern building designed especially for dairy work. The building is equipped with the newest and best types of dairy and creamery machinery.

The market milk room contains two complete pasteurizing units, a clarifier, separator, milk heater, automatic bottle filler and capper, and other necessary equipment for the proper handling of market milk.

The ice cream making room contains a pasteurizing vat, homogenizer, cooler. brine and direct expansion freezers, continuous freezer, filling machines, and additional equipment such as is found in a modern ice cream plant.

The room designed for cheese making is equipped with cheese vats, draining racks, presses, etc. The butter making room has various types of hand and power churns, workers, scales and other accessories.

The separator room contains a collection of separators and other modern equipment and supplies for the dairyman.

The testing laboratories are well equipped with apparatus for the Babcock, Mojonnier, and other tests used for the determination of fat, acidity, and general cleanliness of milk and milk products.

Trains For Jobs Like These:

Skilled workers in wholesale and retail milk plants; foremen, managers, superintendents of dairy concerns; laboratory technicians, sales-promotion, creameries, ice cream plants, mix, freezer, route men, ice cream makers for fancy forms and decorators, Dairy Herd Improvement Association testers, fancy and soft cheese makers, milk room and plant operators on private dairy farms; owners and operators of retail ice cream stores; salesmen for dairy machinery and milk plant equipment and supplies; civil service in city health departments and state dairy inspection service; owners and operators of commercial milk testing laboratories.

Field trips will be required during the two years at an estimated cost of $20 per student.

While working in the dairy laboratories, white suits and rubber footwear are required, at an estimated cost of $10.00.

Dairy Manufactures

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Economics S5 (Dairy Business Accounting)
Agricultural Engineering S1 (Farm Motors)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Dairy S1 (General Dairying)
Practical Science S7
Public Speaking S1
Hygiene S1 (Required of women students)
Physical Education S1 (Required of men students not participating in football; also required of women students).

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Dairy S2 (Testing Milk Products)
Food Technology S2 (Basic Principles and Freezing)
Food Technology S4 (Special Products)
Practical Science S8
Public Speaking S2
Physical Education S2 (Required of Women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

- Animal Husbandry S9 (Special Dairy Cattle Course)
- Business English S1
- Business Management S3
- Dairy S3 (Ice Cream Making, Cheese, and other Milk Products)
- Veterinary Science S1 (Animal Sanitary Science)
- Physical Education S5 (Required of men students not participating in football)

Electives

- Physical Education S3 (For Women)

Second Semester

(Sixteen Weeks Resident Instruction)

- Agricultural Economics S2 (Marketing)
- Agricultural Engineering S6 (Dairy Mechanics)
- Bacteriology S4 (Dairy Bacteriology)
- Dairy S4 (Market Milk and Butter Making)

Electives

- Physical Education S4 (For women)
- Physical Education S4 (Basketball and Hockey)
- Physical Education S6 (Baseball)

DAIRY S-1. (General Dairying) I.

This course takes up the question of the importance of dairying in the United States, and especially in the New England States, giving the development of dairying from the earliest to the present time. It covers the secretion, composition, and properties of milk; reasons for variation in the per cent in fat in different samples of milk; the Babcock test for fat in milk and other dairy products; other common milk tests; the advantage of testing herds, Herd Improvement Associations, advanced registry work; the handling of market milk; soft cheese making, ice cream making, and butter making as applied to general farm conditions. The laboratory work consists in testing milk and dairy products for butter fat, solids, and acidity, together with some dairy plant experience in milk handling, butter making, cheese making, and ice cream making.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR LINDQUIST.

DAIRY S-2. (Testing Milk Products) II.

In this course a study is made of the common tests used in dairy manufacturing processes.

The lectures in this course include a discussion of the application of tests, what they indicate and their importance in the dairy plant.

The laboratory work consists of a study of the various dairy laboratory tests such as sediment, flavor, and total solids of milk; moisture fat and salt determination in butter; moisture test of cheese; the operation of the Mojonnier tester and the modified Babcock tests for fat in dairy products.

In addition to the testing work students will be required to arrange for work about the plant in order to become familiar with dairy plant practices and the operation of dairy machinery.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR NELSON.

DAIRY S-3. (Ice Cream Making, Cheese, and Other Milk Products) I.

This course deals with the making of ice cream, cheese, condensed, evaporated and powdered milk.

In that part of the course on ice cream making, a careful study is made of modern methods of manufacturing the common frozen dairy products (ice cream, sherbets, ices, frozen puddings, punches, mousses, etc.).

The lecture work includes a discussion of the history of ice cream making, the ingredients found in ice cream, methods of preparing and standardizing mixes, the freezing process, methods of hardening, marketing, and distribution of the finished product.

The laboratory work involves the preparation and standardization of ice cream mixes, the freezing of ice cream and other frozen dairy products, and laboratory tests for butterfat and total solids in ice cream.

In that part of the course dealing with cheese making, a study is made of the different methods of manufacturing hard and soft cheese (cheddar, brick, cream, neufchatel, olive, nut, cottage, cheese spreads, etc.).

In the lectures the manufacture of the different cheeses is considered, either from the standpoint of marketing the entire milk supply of the dairy or as an economical means of disposing of surplus milk. In the laboratory work the different kinds of cheese are made.

Lectures are also given on the manufacture of the various concentrated products as sweetened condensed, evaporated, and powdered milk; casein, semi-solid buttermilk, dried whey, malted milk, etc.

3 class hours and 3 3-hour laboratory periods a week. Credit, 8.

ASSISTANT PROFESSOR LINDQUIST AND ASSISTANT PROFESSOR NELSON.

DAIRY S-4. (Market Milk and Butter Making) II.

In that part of the course on market milk, a study of the development of the market milk industry is made. Attention is given to the necessary essentials in producing a high grade milk; the economics of milk production and distribution; food value and uses; the advantages and disadvantages of cooperative milk producers' organizations; the various methods of marketing milk; the transportation, processing and delivery of milk; manufacture and marketing of surplus milk in the form of by-products as cream, cultured buttermilk, chocolate milk, etc.

The laboratory work consists of receiving and making quality tests on milk and the operation of the machinery used in processing market milk.

In that part of the course on butter making, the principal factors studied are: methods of separating milk, the history, selection, care and use of separators; the pasteurization and ripening of cream; testing cream for acidity; the making and use of starters; a study of churns and churning; modern methods of making butter; marketing butter; tests for moisture, salt, fat, and curd content of butter.

3 class hours and 3 3-hour laboratory periods a week. Credit, 8.

ASSISTANT PROFESSOR LINDQUIST AND ASSISTANT PROFESSOR NELSON.

DAIRY S-6. (General Course for Poultry Majors) II.

This course takes up the importance of dairying in the United States, and especially in the New England States.

Lectures will be given on secretion, composition, and properties of milk, reasons for variation in per cent of butter fat in different samples of milk. The Babcock test for fat in milk, cream, skim milk and buttermilk, the advantages of testing herds, herd improvement associations, advanced registry work; the handling of market milk, soft cheese making, ice cream making, and butter making, as applied to general farm conditions.

The laboratory work consists mainly in testing milk and dairy products for butter fat, solids, and acidity, together with some laboratory work in milk handling, butter making, cheese making, and ice cream making.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

ASSISTANT PROFESSOR LINDQUIST.

POULTRY HUSBANDRY

Professor Jeffrey, Professor Sanctuary, Assistant Professor Banta,
Assistant Professor Vondell

There are excellent opportunities in poultry work for men and women who have had the proper training. Graduates from this department have taken their places as leaders in the industry and have filled them capably. Some of them own their own breeding farms, manage or assist in the management of commercial egg farms, while others are in those industries which are closely allied with the production and marketing of poultry products.

Eight specialized courses and one general course are offered by this department. Those students who specialize in poultry culture take all eight courses. The general course is designed to give the students specializing in other branches of agriculture and horticulture the fundamental principles underlying successful poultry raising when a sideline on the farm.

The facilities for practical instruction in poultry husbandry include quarters and equipment in Stockbridge Hall for efficient classroom teaching and demonstrations.

The University Poultry Farm, our practical laboratory, comprises classrooms and laboratories which provide facilities for practice in incubation, breeding, feeding, fattening, killing, picking, candling and grading eggs, caponizing, judging, sexing, construction of poultry houses and appliances, and other phases of poultry work.

The well-bred flock of about 2,000 adult birds consists principally of White Plymouth Rocks, Single Comb Rhode Island Reds, Barred Plymouth Rocks, Rose Comb Rhode Island Reds, Single Comb White Leghorns and New Hampshires. The largest flocks of approximately 150 birds are used primarily for practical experiments and demonstrations in housing, feeding, breeding and management. Equipment includes several types of lamp and mammoth type incubators; many styles of coal and electric brooders and chick batteries for brooding and rearing approximately 5,000 chicks, also cages for laying hens.

The practical phases of commercial poultry production are stressed in the courses offered.

Trains For Jobs Like These:

Skilled workers on poultry farms, owner operators and managers; poultry breeding farms; operation of incubators and brooders; wholesale and retail poultry meats; testing, grading and packing eggs; poultry cooperative sales work with eggs, dressed and live fowl; salesmen for poultry feeds and equipment; broiler production and day-old chicks; turkey and duck farms, breeding (record of performance) and disease control (Pullorum) field men.

Field trips will be required during the two years at an estimated cost of $37 per student. All poultry Stockbridge students will be required to make a trip to the Boston Poultry Show which is held sometime during the month of January. Estimated cost $6.00.

Poultry Husbandry
First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Animal Husbandry S9 (Special Dairy Cattle Course)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Farm Management S3
Poultry Husbandry S1 (Judging and Housing)
Public Speaking S1
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Four Weeks Resident Instruction Followed by Seven Months Placement Training)

Dairy S6 (General Course)
Poultry Husbandry S2 (Incubation and Brooding)
Poultry Husbandry S4 (Feeding)
Public Speaking S2
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Engineering S3 (Farm Shop)
Fruit Growing S9 (General Course)
Poultry Husbandry S5 (Marketing)
Poultry Husbandry S7 (Breeding)
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For Women)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S2 (Farm Motors)
Agricultural Engineering S8 (Farm Structures)
Business English S2
Farm Management S2 (Farm Management and Accounts)
Poultry Husbandry S8 (Supervised Reading)
Poultry Husbandry S12 (Specialties)
Vegetable Growing S10 (General Course)
Veterinary Science S2 (Applied Animal Sanitary Science)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Poultry Husbandry S-1. (Judging and Housing) I.

This course embraces a study of the various economically important types of breeds of domestic fowl, judging for egg production capacity, and for exhibition quality. A visit to Storrs egg laying contest is required. Estimated cost is $2.00. This course also covers the principles and practices of constructing and equipping houses on a commercial poultry farm. A few trips to nearby poultry plants may be taken to study poultry house ventilation. Two credits for judging; two credits for housing.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.
Professor Sanctuary and Assistant Professor Banta.

Poultry Husbandry S-2. (Incubating and Brooding) II.

A study of incubation and brooding is made by means of the operation of standard incubators and brooders and through a consideration of basic principles. Students select and grade hatching eggs, operate small incubators and observe mammoth incubators for a period of time. Under supervision each student has charge of a brood of chicks. Each student will be expected to purchase a one-minute clinical thermometer.

The incubation part of the course will consist of three class hours, one laboratory period and one practice period, and will run parallel to the brooding part which will consist of two class hours, one laboratory period and one practice hour.
5 class hours; 2 2-hour laboratory periods and the equivalent of 2 2-hour laboratory periods in incubation and brooding practice. (7 days a week.) Credit, 9
Professor Sanctuary.

Poultry Husbandry S-4. (Feeding) II.

A study of the scientific principles of nutrition essential to commercial success, with particular emphasis on vitamins. Rations properly balanced for various purposes will be calculated. A comparative analysis of the different methods of feeding is included. Textbook: "Feeding Poultry" by Heuser—Published by John Wiley & Sons.

5 class hours and 1 2-hour laboratory period a week. Credit, 4.
Assistant Professor Banta.

Poultry Husbandry S-5. (Marketing) I.

A study of preparing eggs and poultry products to meet the requirements of the northeastern markets. Grades, prices and reports are studied in conjunction with different marketing methods. The laboratories are designed to cover the field of practical grading, internal study, candling and packing of eggs as well as selection, fattening and killing and dressing poultry by the latest approved methods.

A one-half day class trip to Springfield markets in December is required. Estimated cost, $2.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.
Assistant Professor Vondell.

Poultry Husbandry S-7. (Breeding) I.

This course includes the study of the improvement of poultry by means of mass selection, cockerel progeny, flock improvement, and pedigree methods of breeding. Students follow through each step of a pedigree hatch and assist in the selection of the breeders used at the university plant. Basic principles of heredity necessary for an understanding of good breeding practices are studied. A textbook costing $3.00 to $4.00 will be required.

3 class hours and 1 2-hour laboratory period a week. Credit, 4.
Professor Sanctuary.

Poultry Husbandry S-8. (Supervised Reading) II.

Each student will be assigned references in the field in which he is most interested. Oral weekly reports will be required. A major part of the work will be the writing of a term paper and students will be graded on their ability to summarize reference reading and on the neatness of their work.
3 class hours a week. Credit, 3.
Professor Jeffrey.

Poultry Husbandry S-10. (General Poultry Husbandry) II.

Poultry keeping as a national industry; its importance and geographical distribution; opportunities and possibilities in poultry culture in Massachusetts; principles of feeding; utility classification of fowl; incubation; the production of hatching eggs; the baby chick industry; and brooding and rearing. Practical exercises will be closely correlated with the study of breeds and varieties, various types of incubators, brooders, brooder-houses, etc. Textbook: Jull, "Successful Poultry Management." Note: Students who take course S-10 must get permission from the Poultry Department to take advanced poultry courses.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.
Assistant Professor Vondell.

Poultry Husbandry S-12. (Specialties) II.

Turkeys, ducks, geese, and pigeons are considered. Breeding, incubation, feeding, rearing, management, marketing, housing, and disease control methods and practices are studied. Most of the course is devoted to the study of turkeys. Textbook: Marsden and Martin, "Turkey Management."

2 class hours a week. Credit, 2.
Assistant Professor Vondell.

Massachusetts Poultry Farmers in the Making

ARBORICULTURE

Assistant Professor Mathieu

Arboriculture is the care of trees. It includes tree planting; large tree moving; diagnosis and treatment of tree diseases, defects, and mechanical injuries; identification and control of tree insect pests; fertilizing; pruning and repair of storm or otherwise damaged trees; and removal of dead or undesirable trees. A growing appreciation of the value of trees and a demand for a tree maintenance service has led to the development of organizations to supply it. These firms desire trained men. All Massachusetts towns are required to elect tree wardens. The men who accept this responsibility should be trained in the requirements of trees and their care. This course is designed to give this basic training in the care of shade and ornamental trees to supply these needs.

This University offered the first course in the country on shade tree care in 1895, and since then a very high degree of interest in shade trees has been maintained here. Annually in March a school of one week's duration for tree wardens is held on the campus. This school brings together tree wardens and men interested in tree care to discuss their problems. Parts of the program of the school will be of interest to students in this course.

Our large campus has a wide variety of trees of all ages with which the student becomes acquainted, and which also serves as a laboratory for problems similar to those one will have to meet in practice. The research laboratory in shade tree diseases for the state is also located on the campus.

The Massachusetts Arborists' Association has approved this course as a basic training program.

Those electing Arboriculture must register on Monday, September 15, and begin their work on Tuesday, September 16. This two-week period before the start of regular class work will be used for intensive training in the use of ropes and climbing. Eight hours a day will be given over completely to this purpose. Only those who qualify in this preliminary program will be permitted to take the course in Arboriculture. Those who do not qualify may take the Ornamental Horticulture course.

Trains for Jobs Like These:

Operators, foremen and salesmen for arboriculture firms, utility line clearance foremen, deputy tree wardens and eventually tree wardens in towns and cities, tree care in estates, parks, state highways, college campuses or grounds of other public institutions, developing one's own service organization for the practice of arboriculture.

Recommended clothes for tree climbing: 14 to 16 inch boots with composition or rubber soles (not leather), breeches, good heavy workshirts.

All students qualifying will be required to obtain personal tools for cavity work and a hand saw to cost approximately $25.00. These can be obtained through the University Bookstore.

In each of the Arboriculture courses S1, S2, S3, S4, S5 and S6, required trips will be made to commercial operations in various parts of the state, the travel cost to be borne by the student, not to exceed $10 per semester, or a total of $40.

Arboriculture

First Year

First Semester

(Eighteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Agronomy S5 (Construction and Maintenance of Fine Turf Areas)
Arboriculture S0 (Tree Climbing. Special Qualifying Course)
Arboriculture S1 (Practices and Policies)
Botany S1 (Tree Physiology)
Horticulture S1 (Plant Materials, Trees)
Public Speaking S1
Physical Education S1 (Required of men students not participating in football)

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)
Arboriculture S2 (Continuation of S1)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S2 (Insects of Ornamental Trees and Shrubs)
Horticulture S2 (Plant Propagation)
Public Speaking S2

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Arboriculture S3 (Diagnosis and Control)
Arboriculture S5 (Shade Tree and Shrub Pests)
Business English S1
Forestry S3 (Forest Estimating and Mapping)
Fruit Growing S9 (General Course)
Horticulture S3 (Surveying and Mapping)
Physical Education S5 (Required of men students not participating in football)

Second Semester

(Sixteen Weeks Resident Instruction)

Arboriculture S4 (Diagnosis and Control)
Aboriculture S6 (Shade Tree and Shrub Pests)
Forestry S4 (Forest Production)
Horticulture S4 (Landscape Construction Problems)
Horticulture S6 (Plant Materials, Shrubs)

Electives

Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

ABORICULTURE S-0. (Tree Climbing) I.

For two weeks previous to the regular opening of school, all students electing this major will attend a special qualifying course in tree climbing. This course will be conducted on the campus for eight hours each day for two weeks to acquaint the student with ropes, tools, and climbing technique. To be enrolled in the arboriculture major all students must pass this qualifying tree climbing practice.

8 hours a day for two weeks. ASSISTANT PROFESSOR MATHIEU.

ARBORICULTURE S-1. (Practices and Policies) I.

Factual material covering the phases or types of work; pruning, cabling, bracing, fertilization and line clearance. Laboratory work in the application of class discussion.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.
ASSISTANT PROFESSOR MATHIEU.

ARBORICULTURE S-2. (Continuation of S-1) II.

Soils, their origin, structure and function. Fertilizers, their use, sources, application and functions of their elements in the growth and development of a tree. Cuts and fills and their treatment; cavity treatment and practice tree moving.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.
ASSISTANT PROFESSOR MATHIEU.

ARBORICULTURE S-3 and S-4. (Diagnosis and Control) I. II.

Individual and class assignments of tree problems and practice in applying remedial measures and controls. Reports of assignments and recommendations as to cost and time involved in actual field work.
1 class hour and 8 hours per week in conference and laboratory periods. Credit, 4.
ASSISTANT PROFESSOR MATHIEU.

Arboriculture S-5 and S-6. (Shade Tree and Shrub Pests) I. II.

Recognition of the prevalent shade tree and shrub insects and diseases, their life cycles, control measures, equipment and materials used in control. The lectures and laboratory work in diseases and insects will run concurrently throughout the two semesters of the senior year. Insect and fungus collection of specimens required.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Mathieu.

COMMERCIAL VEGETABLE GROWING

Professor Snyder, Assistant Professor Tuttle, Mr. Johnson

There are many opportunities for both men and women who complete the Stockbridge School vegetable growing courses. These include the operation of a market garden, truck crop, or greenhouse business; skilled employees of commercial operators; operators or trained employees in the many types of wholesale and retail marketing; employees in responsible positions on private estates, private and state institutions as well as with commercial companies handling agricultural products such as fertilizers, seed and various supplies and equipment.

The production and marketing of vegetable crops is a highly specialized business involving a background of technical training as well as a knowledge of practical skills. The staff and facilities of the Department of Vegetable Growing are well qualified and adequate to give a thorough training to students in the fundamentals essential to growing, harvesting and marketing the many vegetable crops commonly grown in New England.

In addition to the facilities of the Department, trips will be made to several production areas and markets to observe actual operations.

Trains For Jobs Like These:

Skilled workers on market garden and truck farms, growers of commercial vegetable crops in greenhouses, cold frames, and fields. Operating all types of farm machinery, tractors, cultivators, seeders, both motor and horse-drawn; preparing crops for market, sorting, grading, bunching, packing. Wholesale and retail sales and distribution. Workers for seed-growing firms, plant breeding and field work on testing plots. Operators, owners, managers of vegetable crop farms. State and federal market inspectors on commercial grades and packs. Buyers and inspectors for dehydration and quick freezer plants. Institutional farm managers.

Field trips will be required during the two years at an estimated cost of $40 per student.

Commercial Vegetable Growing

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Floriculture S1 (Garden Materials)
Floriculture S3 (Greenhouse Construction and Heating)
Fruit Growing S1 (Growing Tree Fruits)
Public Speaking S1
Vegetable Growing S1 (Principles of Vegetable Culture)
Vegetable Growing S3 (Systematic Vegetable Growing)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)
Floriculture S2 (Greenhouse Management and Propagation)
Fruit Growing S2 (Orchard and Vineyard Pruning)
Public Speaking S2
Vegetable Growing S2 (Principles of Vegetable Culture)
Vegetable Growing S12 (Diseases, Insects, and Their Control)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

- Agricultural Engineering S9 (Drainage and Farm Structures)
- Beekeeping S1 (Fall Management, Wintering, honey, and Bee Diseases)
- Business English S1
- Fruit Growing S7 (Small Fruits)
- Vegetable Growing S5 (Market Practices)
- Vegetable Growing S7 (Commercial Vegetable Growing)
- Physical Education S5 (Required of men students not participating in football)

Elective

- Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

- Beekeeping S2 (Spring Management, Pollination and Honey Production)
- Farm Management S2 (Farm Management and Accounts)
- Fruit Growing S4 (Fruit Pests and Spraying)
- Vegetable Growing S4 (Vegetable Forcing)
- Vegetable Growing S6 (Marketing Methods)
- Vegetable Growing S8 (Commercial Vegetable Growing)

Electives

- Physical Education S4 (For women)
- Physical Education S4 (Basketball and Hockey)
- Physical Education S6 (Baseball)

VEGETABLE GROWING S-1. (Principles of Vegetable Culture) I.

Lecture periods are devoted to discussions covering certain fundamental principles of plant structure and growth as they influence and regulate commercial vegetable culture. The work in the laboratory includes detailed studies in seedage, plant growing, manures and fertilizers, garden planting, pests, storage and marketing.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR TUTTLE.

VEGETABLE GROWING S-2. (Principles of Vegetable Culture) II.

Lectures are devoted to discussions of the more important environmental factors of the soil and climate which regulate plant growth and reproduction, including water, temperature, light, humidity and wind. The laboratory studies cover the more fundamental factors of plant breeding, variety improvement and seed production.

3 class hours and 1 2-hour laboratory period a week. Credit, 4.

PROFESSOR SNYDER AND MR. JOHNSON.

VEGETABLE GROWING S-3. (Systematic Vegetable Growing) I.

This course is designed to acquaint the student with the identification, nomenclature and classification of the standard types and varieties of vegetables; judging and exhibiting; seed production and variety improvement work.

1 class hour 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR TUTTLE.

VEGETABLE GROWING S-4. (Vegetable Forcing) II.

A study of the principles and practices involved in growing, harvesting and marketing of vegetable crops commonly grown in forcing structures, especially tomatoes, cucumbers, lettuce, mushrooms and rhubarb. Discussions will also include the growing and handling of vegetable plants for field setting, in plant houses, hotbeds and cold frames.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR TUTTLE.

VEGETABLE GROWING S-5. (Marketing Practices) I.

A study of the various factors and practices involved in harvesting, preparing for market (bunching, tying, wrapping, waxing), grading, packaging, packages used, brands and inspection of vegetables for various market outlets as well as packing house facilities and storage. Trips to nearby and Boston markets will cost approximately $10.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.
PROFESSOR SNYDER.

VEGETABLE GROWING S-6. (Marketing Methods) II.

A continuation of the studies in S-5 covering the marketing of vegetables with emphasis on advertising, salesmanship, roadside markets, wholesale and retail outlets, market reports and transportation by truck, rail and plane.

3 class hours a week. Credit, 3.
PROFESSOR SNYDER.

VEGETABLE GROWING S-7. (Commercial Vegetable Culture) I.

Problems and practices of the commercial grower are discussed as they involve seedage, planting, cultivation, irrigation, tools, machinery, farm organization, and management.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.
MR. JOHNSON.

VEGETABLE GROWING S-8. (Commercial Vegetable Culture) II.

This is a continuation of Vegetable Growing S-7 in which the discussions involve the cultural practices for the various vegetables that are of commercial importance in the New England area. Organized trips to market gardening areas are required which cover a period of approximately three days and cost about $30.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.
ASSISTANT PROFESSOR TUTTLE.

VEGETABLE GROWING S-10. (General Course) II.

This course is designed to meet the needs of students in other majors who cannot devote more than one semester to a study of vegetable growing. Attention is to be given to starting plants early, transplanting, seeding, fertilizing, spraying, dusting, harvesting, marketing, and storing the more important vegetable crops.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.
MR. JOHNSON.

VEGETABLE GROWING S-12. (Diseases, Insects and Their Control) II.

This course is intended to give those students majoring in vegetable growing an understanding of the more common insects and diseases which attack vegetable plants and the most satisfactory methods for controlling these pests.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.
ASSISTANT PROFESSOR TUTTLE.

FINE TURF MAINTENANCE

Associate Professor Dickinson, Mr. Cornish

There is an immediate need for skilled supervisory assistants to park, cemetery, and recreation area superintendents. Municipal and private golf clubs are expecting that their superintendents shall be trained in fine turf maintenance. Every city and large town offers splendid opportunities for the private business horticulturist who is especially well trained to "take care of the lawn."

As the many proposed memorial parks, play fields, public buildings, and golf courses are being constructed and completed, the demand for specialists in turf maintenance will be increased and the number of replacements needed annually will be large.

This course is arranged and taught in such a manner that a student who has completed the work will be well qualified to accept a position as assistant or the actual superintendency of a small park, cemetery, or golf course, or to establish a business in his community.

Laboratory and field exercises give practical experience and demonstrations. Good equipment is supplemented by loans from manufacturers and supply houses. The supporting courses are strong and have been carefully chosen for their close alliance to the problems of turf maintenance and general estate work.

Each student's placement training and special interest will be considered in his chosen field, whether it be park, cemetery, golf course, or private business, and professional men will visit the classes to give of their experiences. Every student will be required to keep a record of work done, results obtained, and observations made during the placement training period, for use during the senior year.

Trains For Jobs Like These:

Assistant to superintendent of cemeteries, city parks, golf courses, recreation areas, college and private school athletic fields and grounds, estate gardeners, commercial nurseries and landscape service.

At least one field trip will be required during the second semester of the senior year. The total cost of such a trip or trips to each student will not exceed $20.00.

Fine Turf Maintenance

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Agrostology S1 (Orientation Course)
Agrostology S3 (Uses and Requirements of Turf Areas)
Floriculture S1 (Garden Materials)
Horticulture S1 (Plant Materials)
Public Speaking S1
Physical Education S1 (Required of men students not participating in football)

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)
Agrostology S2 (Construction of Fine Turf Areas)
Agrostology S4 (Maintenance of Fine Turf Areas)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S6 (Turf Insects)
Public Speaking S2

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S3 (Farm Shop)
Agrostology S5 (Application of First Year Courses)
Agrostology S7 (Disease Controls)
Business English S1
Horticulture S3 (Surveying and Mapping)
Horticulture S7 (Grounds Maintenance)
Physical Education S5 (Required of men students not participating in football)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S2 (Motors)
Agrostology S6 (Fine Turf Maintenance as a Business)
Agrostology S8 (Drainage and Equpiment)
Floriculture S8 (The Uses of Herbaceous Plants)
Horticulture S4 (Landscape Construction Problems)

Electives

Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Agrostology S-1. (Orientation Course) I.

An orientation course to furnish background for following courses: The physiology of the grass plant, the human factor as related to turf growing, are examples.

3 class hours a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-2. (Construction of Fine Turf Areas) II.

Construction of fine turf areas. Influence of foundation, subsoil, and topsoil zones. Talks preliminary to placement training. Adaptation of Agronomy S1.

3 class hours a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-3. (Uses and Requirements of Turf Areas) I.

Uses and requirements of turf areas. Grass seed and plant characteristics, identification and adaptation. Germination of seeds and growing of plants.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-4. (Maintenance of Fine Turf Areas) II.

Maintenance of fine turf areas. Fertilizing, weeds, clipping, and watering, with practical work and problems. Adaptation of Agronomy S2.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-5. (Application of First Year Courses) I.

Thorough resume of the summer work by students, discussing labor, operations, equipment, and results. Application of first year courses.

3 class hours a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-6. (Fine Turf Maintenance as a Business) II.

Fine turf maintenance as a business. Costs, purchasing, and reports.

3 class hours a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-7. (Disease Controls) I.

Diseases, weeds, and insect pests, with their controls.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-8. (Drainage and Equipment) II.

Drainage, and equipment. Balancing of cultural and monetary costs of each operation. Each man will be a "superintendent" and have to arrange a maintenance program for a given area, having given conditions.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Associate Professor Dickinson.

FLORICULTURE

Professor Thayer, Assistant Professor Hubbard, Assistant Professor Ross, Mr. Dunham

Students who complete the course in Floriculture are fitted primarily for work in commercial and private estate greenhouse establishments and retail flower stores. After gaining experience such students may be able to start in business for themselves. With the courses in Ornamental Horticulture they should also be qualified for positions on private estates, in parks, or in nurseries.

The offices and classrooms of the Department are located in French Hall. Of the two lecture rooms, one will accommodate 40 students, the other 30 students; a laboratory, equipped with slate-covered tables, will accommodate 36 students; the greenhouse laboratory for 20 students provides excellent facilities for much of the practical work. In the basement of the building there are located a specially prepared room for bulb storage, a fertilizer and tool room, and a large room for general storage purposes.

The glass area of the Department consists of approximately 14,000 square feet divided as follows: (1) the French Hall range of 11,800 square feet, a modern, practical, commercial range including propagating, palm and fern, sweet pea, carnation, rose and student houses; (2) approximately 2,200 square feet in cold frames and hotbeds. In addition, the Department has the use of the materials in the Durfee Plant Houses, an old range of 7,400 square feet, which houses primarily a collection of tropical, decorative, and other conservatory plants.

Land is available for the outdoor culture of florists' crops. A small perennial garden and a small rose garden are also maintained.

Trains For Jobs Like These:

Skilled workers in commercial greenhouses and on private estates, growing all types of flower crops; wholesale and retail florists, growers, salesmen, managers; flower arrangement work, designers and decorators in retail flower stores; salesmen for florists' supplies and equipment.

Students who major in Floriculture are required to purchase the following equipment in the first semester of the first year: Bailey's Standard Cyclopedia of Horticulture, estimated at $20.00; drawing board (16″ x 22″), T-square, architect's scale, and triangle, estimated at $5.00; a florist's knife estimated at $1.50. Field trips will be required during the two years at an estimated cost of $20.00.

Floriculture
First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Floriculture S1 (Garden Materials)
Floriculture S3 (Greenhouse Construction and Heating)
Horticulture S1 (Plant Materials)
Public Speaking S1
Vegetable Growing S1 (Principles of Vegetable Culture)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S2 (Insect Pests of Ornamental Trees, Shrubs, and Flowers)
Floriculture S2 (Greenhouse Management)
Horticulture S2 (Plant Propagation)
Public Speaking S2
Vegetable Growing S2 (Principles of Vegetable Culture)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S3 (Farm Shop)
Business Management S1 (Fundamentals of Business Management)
Floriculture S5 (Commercial Production)
Floriculture S7 (Flower Arrangement)
Fruit Growing S7 (Small Fruits)
Horticulture S7 (Grounds Maintenance)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

Business English S2
Floriculture S6 (Commercial Production)
Floriculture S8 (The Uses of Herbaceous Plants)
Floriculture S10 (Conservatory Plants)
Horticulture S6 (Plant Materials)
Vegetable Growing S4 (Vegetable Forcing)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

FLORICULTURE S-1. (Garden Materials) I.

This course is intended for students who will take up private estate work or who will specialize in floriculture. It includes a study of the annuals, biennials, herbaceous perennials, and bedding plants which are commonly used in commercial floriculture and in private estate work. Methods of propagation, culture and uses are considered. Laboratory exercises include work in propagation, planting, study of materials, and planning of beds and borders.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR HUBBARD AND MR. DUNHAM.

FLORICULTURE S-2. (Greenhouse Management) II.

A study of the principles of greenhouse management including the consideration of soils, fertilizers, watering, ventilation, temperature regulation, insect and disease control.

3 class hours and 1 2-hour laboratory period a week. Credit, 4.

ASSISTANT PROFESSORS HUBBARD AND ROSS.

FLORICULTURE S-3. (Greenhouse Construction and Heating) I.

The origin, growth, and importance of the floricultural industry; types of greenhouses, types of construction, painting, glazing, ventilators, beds and benches, and methods of heating. Trips may be taken to visit greenhouse ranges in the vicinity of Amherst with university transportation.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

PROFESSOR THAYER.

FLORICULTURE S-5 (Commercial Production) I.

Courses S-5 and S-6 are devoted to a consideration of the important commercial crops. Special attention is given to the culture (under glass) of carnations, roses, chrysanthemums, sweet peas and snapdragons. Other cutflower crops and seasonal pot plants are also considered. Modern methods of production including soilless culture and subirrigation practices are discussed in detail.

All members of the class are required to take a one-day trip to visit a large commercial greenhouse range at an approximate cost of ten dollars each.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR HUBBARD.

FLORICULTURE S-6. (Commercial Production) II.

A continuation of Floriculture S-5.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR HUBBARD.

FLORICULTURE S-7. (Flower Arrangement) I.

The lectures include a discussion of the principles and techniques underlying the use of flowers in corsages, wedding bouquets, vase, bowl, and basket arrangements, table decorations, funeral designs and sprays, and decorations for public functions. The study of color and color harmonies is also considered in this course. The laboratory periods provide opportunity for actual practice in making the various types of arrangements which are considered in the classroom.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR ROSS.

FLORICULTURE S-8. (The Uses of Herbaceous Plants) II.

This course is a continuation of Floriculture S-1 and is intended for students specializing in floriculture and ornamental horticulture. It provides opportunity for a more detailed study of many of the plants considered in the preceding course with special emphasis on their uses in gardens and in other types of landscape planting. Lectures, assigned readings, study and identification of plants, planning of borders and gardens.

Students enrolled in this course may be required to take a one day trip to the Boston Spring Flower Show at an approximate cost of ten dollars.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

ASSISTANT PROFESSOR HUBBARD AND MR. DUNHAM.

FLORICULTURE S-10 (Conservatory Plants) II.

A study of the plants, both foliage and flowering, which are used in conservatories and in decorative work. Methods of propagation, culture, uses and identification of plants are included in the course. Trips may be taken to visit the conservatories at Smith and Mount Holyoke Colleges with university transportation.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

PROFESSOR THAYER.

FOOD MANAGEMENT

Professor Fellers, Assistant Professor Levine, Assistant Professor Kranz, Mr. Morse

Food management work in all its various trade sub-divisions is closely allied to food production work. Purchasing agents for wholesale and retail food chains must know vegetables and fruits of all kinds, meats, and dairy products such as milk, butter, cheese and ice cream; poultry products such as fowl, ducks, turkeys, and all kinds of eggs and egg products. This same knowledge of superior grades, varieties, and packs of all agricultural products, as well as the modern methods of cooling, freezing, preserving, processing, and serving, is highly essential to the hotel and restaurant industry for its supply of future managers, stewards, and operators. Lunchroom, tearoom, and all summer resort operators should have thorough training in the procurement of food supplies of superior quality if trade competition and public demands are to be efficiently and economically controlled.

Modern methods of food processing including canning, freezing, dehydration and packaging, place a greater responsibility on institutional buyers. Sound knowledge in food production methods may be considered essential to the complete training of stewards, food managers, and restaurant operators. Railroad and aviation dining service offer large new fields for food management efficiency and service.

Planning of menus and preparation of food is studied and practiced in this course, along with a complete survey of the whole food production program in agriculture. The excellent equipment of the farms, orchards, food technology laboratories and dining halls, is a major factor for thorough training which this University provides.

This course is sponsored by the Massachusetts Hotel Association and by the Massachusetts Restaurant Association whose members are cooperating in the placement and employment of students and graduates. The Boston Stewards Club has generously donated an annual scholarship prize fund and the state hotel association has established a loan fund for student aid.

The Food Management course is given with the cooperation of the University dining halls under the management of Mr. Walter O. Johnson.

Trains For Jobs Like These:

Assistant cooks, cooks, stewards, in restaurants, cafeterias, hotels, country inns and vacation resorts serving both summer and winter clientele. All New England states have a huge business in their country areas providing home-grown foods and food products for the year-round vacation trade. Many farm homes and boarding houses rely on this type of business for a considerable part of their income. New England foods from shore and farm have earned a distinctive quality which this course seeks to maintain.

For butchering and dressing all kinds of livestock, and preparation of commercial meat cuts and products. For quick freezing all types of farm products for commercial sale or for freezer locker plants, their operation and maintenance. For work in canning and preserving plants.

Field trips will be required during the two years at an estimated cost of $52.00 per student.

Food Management
First Year

First Semester

(Sixteen Weeks Resident Instruction)
Chemistry S1
Foods and Nutrition S1 (Basic Principles of Food Preparation)
General Mathematics S1
Introduction to Stewarding S1
Poultry S9
Public Speaking S1
Vegetable Growing S5 (Marketing Practice)
Hygiene S1 (Required of women students)
Physical Education S1 (Required of men students not participating in football; also required of women students)

Second Semester

(Sixteen Weeks Resident Instruction followed by four months Placement Training)
Agricultural Economics S4 (Marketing)
Agricultural Engineering S12 (Food Handling Equipment)
Chemistry S2
Food Technology S2 (Basic Principles and Freezing)
Public Speaking S2
Quantity Foods S2
Special Lectures S2
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)
Accounting S1
Animal Husbandry S7 (Meats Course)
Bacteriology S3 (Food Sanitation)
Foods and Nutrition S3 (Elementary Nutrition)
Food Technology S5 (Food manufacturing)
Fruit Growing S11 (Fruits and Fruit Handling)
Kitchen Administration S1
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)
Accounting S2
Business English S2
Dairy S8 (Judging, Testing, and Processing of Milk, Cheese, Butter and Ice Cream)
Entomology S4 (Structural Pests)
Foods and Nutrition S2 (Menu Planning, Meal Preparation and Service)
Food Service S2
Special Lectures S4

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

ACCOUNTING S-1. I.

This course aims to give the student an elementary working knowledge of the principles underlying the accounting system in the gathering, analysis and interpretation of accounting data, and the methods used in preparing the usual type of business statements. Special problems relating to institution management will be used.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR COLWELL.

ACCOUNTING S-2. II.

This course is a continuation of Accounting S-1 and furnishes a comprehensive study in the application of fundamental accounting principles to the hotel industry. Various systems of hotel accounting are studied and problems are assigned wherein the student makes use of the uniform system of accounts as recommended by the American Hotel Association. Emphasis is placed upon food costs and food control.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

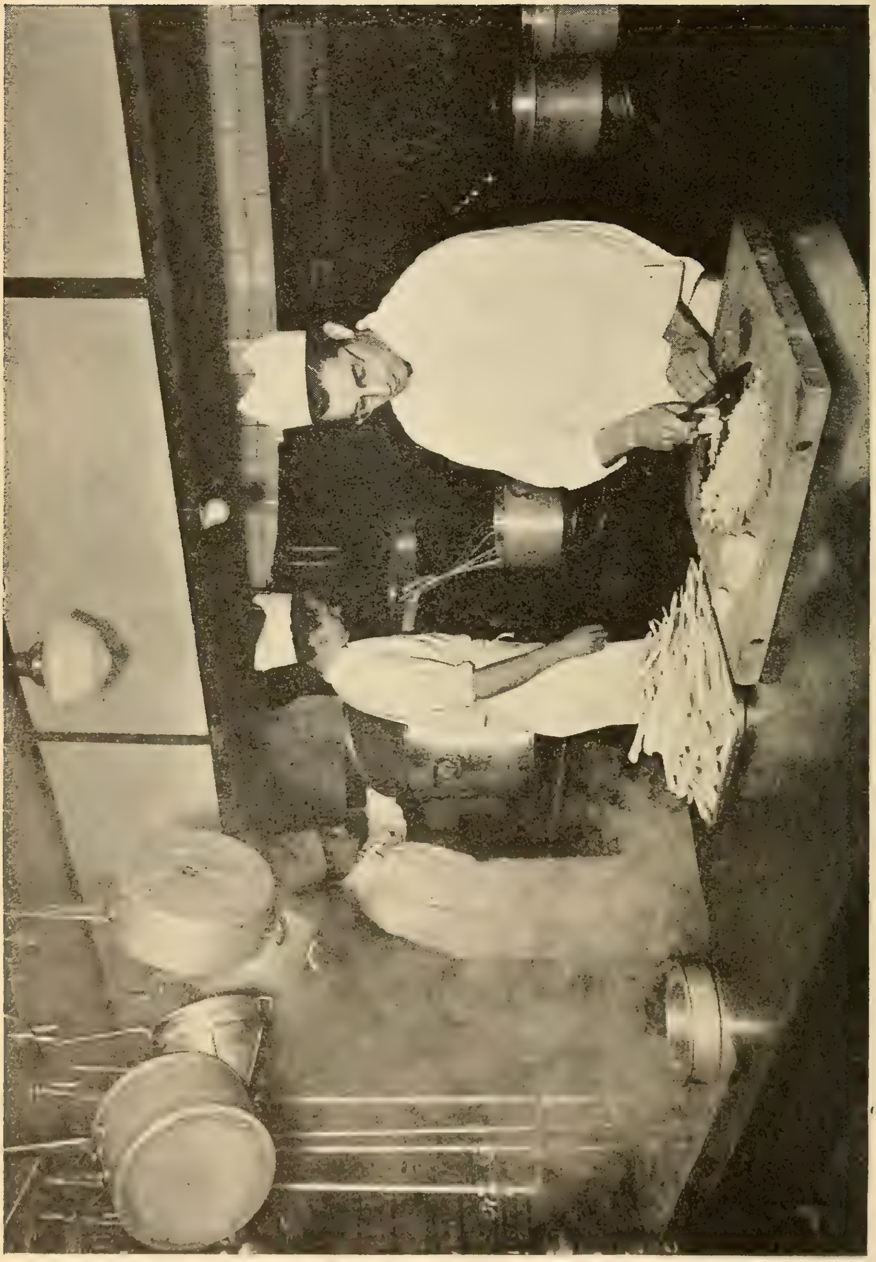
ASSISTANT PROFESSOR COLWELL.

AGRICULTURAL ECONOMICS S-4. (Marketing) II.

This course is designed to give instruction in purchasing and in management for Hotel Stewards. A study of the distribution system for food products will be given as well as merchandising practices, store location, advertising and personnel management.

2 class hours a week. Credit, 2.

PROFESSOR LINDSEY.



A Laboratory Exercise in Food Management—University Cafeteria

AGRICULTURAL ENGINEERING S-12. (Food Handling Equipment) II.

This course covers the mechanical equipment used in hotel management. It includes a study of refrigerators, cleaning equipment, electric ranges, pumps, steam boilers, and miscellaneous steam equipment; and the care and maintenance of electric appliances, including electric motors. Practice will be given in wiring, soldering, and pipe fitting.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR TAGUE.

ANIMAL HUSBANDRY S-7. (Meats Course) I.

For Seniors in the Food Management Course. This course is designed to impart a knowledge of the fundamental principles involved in judging, purchasing, and efficiently utilizing meat and meat products. Laboratories will involve actual slaughtering, dressing, wholesale and retail cutting, and preparation of by-products. Judging practice will be secured in a near by packer cooler and at the end of the course a one day trip costing $10.00 will be scheduled to several large packing houses in Boston. Textbook: Ziegler, "The Meat We Eat." Special equipment needed for this course includes knives, boots, and wash suits,—estimated cost $15.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR HALE.

BACTERIOLOGY S-3. (Food Sanitation) I.

This course includes a general study of micro-organisms responsible for the common diseases of man and the methods employed in their detection and control. It introduces the student to the application of bacteriological principles in the analysis of water, milk and milk products, and other food substances. Bacteria, molds, and yeasts are studied as living agents responsible for the decay, spoilage and infection of foods. The importance of the proper control of these living agents in the production and ripening of certain foods is considered. The conditions necessary for microbial growth and factors responsible for the universal distribution of micro-organisms are studied. The application of sanitation, chemical preservatives and physical and environmental conditions in the control of food infection or spoilage is discussed and demonstrated.

This course is designed to give students interested in the practical problems of food sanitation, spoilage, handling, and preservation a better understanding of bacteria and an appreciation of their importance in the sanitary production and handling of foods.

Laboratory discussions, exercises, and demonstrations.

2 3-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR PERRIELLO.

CHEMISTRY S-1 and S-2. I. II.

A general course designed to give a survey of both inorganic and organic chemistry, particularly those sections closely related to foods and nutrition. Acids, bases, salts, water, minerals, fats, proteins, carbohydrates and vitamins will be among the topics discussed. The lectures, textbook assignments and laboratory work will stress the practical aspects of chemistry in relation to the above substances.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS.

DAIRY S-8. (Judging, Testing, and Processing of Milk, Cheese, Butter, and Ice Cream) II.

Work will be given on the importance of dairy products—their composition and food value. A careful study will be made of market grades—what they are and how arrived at. Ample laboratory work will be given in judging dairy products, to familiarize the student with the various grades and packs of all dairy products. A special study will be made of practical tests that can be used in determining quality of milk, of ice cream, of cheese, and of butter.

The course will also include a limited amount of practice work in the pasteurizing and processing of market milk, in the making of ice cream, or butter, and of cheese, particularly the soft cheeses, in order to provide a basis for the more intelligent selection of dairy products.

The course is arranged especially for those interested in foods and food processing as applied to hotel and restaurant work.

During the semester a trip will be made to leading dairy wholesale markets in Boston, at an estimated cost of $10.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Lindquist and Assistant Professor Nelson.

Entomology S-4. (Structural Pests) II.

This course is offered during the last eight weeks of the second semester. General introduction to Entomology, followed by studies and discussions of more important pests with which hotel stewards would come in contact.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Professor Sweetman.

Foods and Nutrition S-1. (Basic Principles of Food Preparation) I.

This course aims to teach the basic scientific principles of food preparation. It will include standards for finished products, conservation of nutritive values, foundation recipes, food materials, actual preparation of typical foods and recent developments in food preparation.

2 3-hour laboratory periods a week. (Includes class hour) Credit, 4.

Miss Davis.

Foods and Nutrition S-2. (Menu Planning, Meal Preparation and Service) II.

This course is a further study of nutritive value and preparation of food with emphasis on planning, preparation of meals and meal service. Some emphasis is placed upon the organization and executing of chefs' and stewards' duties as they exist in restaurant and hotel set-ups. All food preparation is limited to small quantities.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Miss Davis.

Foods and Nutrition S-3. (Elementary Nutrition) I.

This course is designed to give a general survey of the fundamental principles on which the normal person may plan an adequate dietary. It includes a study of the nutritive value of foods so as to make wise selection possible.

3 class hours a week. Credit, 3.

Assistant Professor Cook.

Food Service S-2. II.

Kitchen and restaurant equipment, quantity and formula cooking, steward employee relationship, steward-purveyor relationship. Psychology applied to personnel management, conferences, work supervision, advancement, opportunities. Responsibilities of a steward; health and safety sanitation; labor and food laws.

1 class hour and 1 4-hour laboratory period a week. Credit, 3.

Assistant Professor Kranz.

FOOD TECHNOLOGY S-2. (Basic Principles, Freezing, Canning and Pickling) II.

Principles of food preservation including refrigeration and modern locker storage management are covered. Work is given in the use of packaging materials and the examination and grading of food products. Three field trips will be required. Estimated cost $10.00.

1 class hour and 1 4-hour laboratory period a week. Credit, 3.

MR. MORSE.

FOOD TECHNOLOGY S-5. (Food Manufacturing) I.

Class work consists of study and laboratory exercises on phases of the food industry of major interest to the students. The studies include food preservation methods, manufacture of carbonated beverages, pickled products, confectionery production and commercial bakery procedures and operations. Some field trips to local commercial food plants will be made.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR LEVINE.

FRUIT GROWING S-11. (Fruits and Fruit Handling) I.

This course is designed primarily for students who are specializing in Food Management. It includes:

1. A study of common varieties of native fruits, citrus fruits, and bananas and the season during which each variety is at its best from the standpoint of the consumer.
2. A consideration of the factors which determine grades of various fruits.
3. A thorough study of storage qualities and methods of storing all fruits commonly used here.

A two-day field trip is a part of the course. Estimated cost, $10.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS.

GENERAL MATHEMATICS S-1. I.

This course provides a thorough drill in those fundamentals which are used in practical arithmetic. Fractions, ratio and proportion, percentage, formulas of area and volume, graphs, logarithms, and the use of the slide rule will be studied.

2 class hours a week. Credit, 2.

INTRODUCTION TO STEWARDING S-1. I.

This course includes the following: Kitchen personnel; list of occupational divisions; duties of individuals; receiving, delivery, and shipping departments; food purchasing; markets; bookkeeping and budgeting; cleanliness and sanitation; duties of storekeeper and assistant steward.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR KRANZ.

KITCHEN ADMINISTRATION S-1. I.

The course will be a general study of the various problems arising in the operation of a commercial kitchen. Attention will be given to the planning and equipment of kitchens, food control and costs, and personnel problems. Beverages and their service; planning meals and menus. Field trips are made to near-by kitchens.

2 class hours a week. Credit, 2.

ASSISTANT PROFESSOR KRANZ.

POULTRY HUSBANDRY S-9. I.

This course covers candling and grading of eggs, market classification, a study of eggs in the local markets, dressing poultry and various ways of preparing poultry for the table. Prices and market operations form an active part of the course.

A one-half day class trip to the Springfield markets in December is required. Estimated cost, $2.00.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.
ASSISTANT PROFESSOR VONDELL.

QUANTITY FOODS S-2. (Preparation and Service) II.

This course is planned to give the student an insight into the problems of the kitchen department of the hotel, restaurant or club. Students will be under the supervision of the manager of the Dining Hall and will be apprenticed to the regular employees at the University Dining Hall and will assist the cooks, baker, stock clerk, etc., during the laboratory periods. The course is planned so that each student will have the opportunity to do actual work in quantity food preparation and service.

2 4-hour laboratory periods a week. Credit, 4.
ASSISTANT PROFESSOR KRANZ.

SPECIAL LECTURES S-2 and S-4. II.

Registration restricted to Food Management students. These lectures will be presented weekly by men within the hotel and restaurant industry and allied professions and by members of the university faculty. They will cover a variety of subjects all of which will be of interest and value to young people planning to enter the hotel and restaurant business.

1 class hour a week. Credit, 1
THE DEPARTMENT.

VEGETABLE GROWING S-5. (Marketing Practice) I.

A study of the various factors concerned with the harvesting and marketing of vegetable produce, including grades, packs, packages, brands, market and inspection requirements.

3 class hours a week. Credit, 3.
PROFESSOR SNYDER.

About 129,000 citizens of Massachusetts are engaged directly in agricultural pursuits while a slightly larger number are engaged in "allied industries" which aid the farming industry by obtaining farm supplies and services for production, and then provide the services and facilities for marketing the farm products. This means approximately 100,000 jobs. From 3,000 to 5,000 replacements are required every year to maintain the industry.

APPLIED FORESTRY

Professor Holdsworth, Professor Trippensee, Professor Rhodes, Associate Professor Rich, Assistant Professor Stickel, Mr. Hadley

The two year course in applied forestry is intended to equip men with a sound understanding of the basic principles of forestry and their vocational application in the field.

The men who elect to take the course should fully understand that the vocation for which they are preparing will involve hard work, much of it physical in character. They should also keep in mind that a man trained in forestry techniques will be in a position to advance through apprenticeship to jobs of genuine responsibility.

There is a definite place in the broad field of forestry for trained workers who are capable of understanding and intelligently carrying out the tasks of a subprofessional character which are so necessary to forest maintenance and development.

Men who successfully complete the curriculum in applied forestry are qualified for places with timber growing and forest products industries, for supervision of forested estates, watershed properties, town forests and for work with certain public agencies which are concerned with forestry.

Facilities: The University owns 800 acres of woodland which is used for the laboratory and field studies of the Stockbridge School. It has ready access to a very considerable additional acreage in the neighborhood of Amherst.

Placement Training: The program of study and training requires the students of Applied Forestry to spend four months in placement training. The placement jobs in forestry often require the student to work at a considerable distance from this region.

Equipment: The Forestry Department has good technical equipment for field study purposes.

Student Limitation: Each entering class is limited to fifteen men.

Student Needs: In addition to the regular expense of the Stockbridge School, the student must be prepared to buy draughting equipment costing about $30.00, a hand compass costing about $7.00, and should be able to take several field trips, the cost of which will be about $50.00.

APPLIED FORESTRY

First Year

First Semester

(Sixteen Weeks Resident Instruction)
Agronomy S1 (Soil Management)
Dendrology S1
Forest Measurement S1
Forest Physiology S1
Review Mathematics S1
Physical Education S1

Second Semester

(Sixteen Weeks Resident Instruction Followed by Four Months Placement Training)
Business English S2
Forest Draughtsmanship S2
Forest Measurement S2
History of American Forestry; The Public Domain S2
Wood Identification S2

Electives

Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)
Forestry Protection S3
Harvesting S3
Horticulture S3
Library Reading and Reports S1
Silvics S3
Physical Education S5 (Required of men students not participating in football)

Second Semester

(Sixteen Weeks Resident Instruction)
Applied Silviculture S4
Forest Insects and Diseases S4
Forest Management S4
Forest Products S4
Seeding and Planting S4
Wildlife Management S4

Electives

Physical Education S4 (Baseball and Hockey)
Physical Education S6 (Baseball)

APPLIED SILVICULTURE S-4. II.

This course considers the several forest reproduction methods, the intermediate cuttings, together with extensive field practice in their application.

1 8-hour field period a week. Credit, 4.

DENDROLOGY S-I. I.

Features of identification, classification and geographical distribution of the principal trees of North America together with a study of the vegetation regions of the United States and Canada.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

FOREST DRAUGHTSMANSHIP S-2. II.

A course designed to teach the use of draughting equipment for purposes of map, chart and graph making. Instruction in lettering is included.

2 2-hour laboratory periods a week. Credit, 2.

FOREST INSECTS AND DISEASES S-4. II.

A study of the characteristics of the principal forest insects and diseases and the nature of the damage they inflict or the good that they do in the forest.

3 class hours a week. Credit, 3.

FOREST MANAGEMENT S-4. II.

The management of American forests; the preparation of operational management plans. Class and field work.

2 class hours and 1 4-hour field period a week. Credit, 4.

FOREST MEASUREMENTS S-1. I.

Determination of the volume and value of forest growing stock by several approved methods. This involves the making of a chain and compass area survey, type mapping and the use of instruments used in forest estimating and growth studies.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

FOREST MEASUREMENTS S-2. II.

Continuation of and development of S-1.

3 class hours a week (or equivalent field work) Credit, 3.

FOREST PHYSIOLOGY S-1. I.

The structure and physiological functions of forest trees and other forest vegetation. A classroom course with demonstrations.

3 class hours a week. Credit, 3.

FOREST PRODUCTS S-4. II.

The properties of American woods. The products of the forest industries.

3 class hours a week. Credit, 3.

FOREST PROTECTION S-3. I.

Methods of protecting the forest against fire and other forest-destructive agencies.

3 class hours a week. Field trips by arrangement. Credit, 3

HARVESTING S-3. I.

The methods of harvesting forest products with special emphasis on means used in New England. A general survey of methods used in all of the forest regions of the United States.

2 class hours and 1 4-hour laboratory field period a week. Credit, 3.

LIBRARY READING AND REPORTS S-1. I.

Library reading and study on assigned forestry subjects. Designed to develop the ability to analyze forestry material and to abstract it clearly and concisely.

2 hours general seminar. Individual Conferences. Credit, 3.

REVIEW MATHEMATICS S-1. I.

A course having for its purpose the bringing into sharp focus the simple mathematics which is used in vocational forestry and without which such forestry cannot be intelligently practiced. Arithmetic, plane geometry and certain vocational uses of trigonometry are taught.

3 class hours a week. Credit, 3.

SEEDING AND PLANTING S-4. II.

This course considers the production of forest planting stock in nursery; the characteristics and quality of forest tree seed; artificial reforestation.

1 class hour and 2 2-hour field and laboratory periods a week. Credit, 3.

SILVICS S-3. I.

The forest qualities and requirements of forest trees, including a study of tree-growing site relationships, growth rates, tolerance, temperature, and moisture factors. Special emphasis is laid on the experience of others in the forest use of certain tree species.

3 class hours a week. Credit, 3.

THE HISTORY OF AMERICAN FORESTRY; THE PUBLIC DOMAIN S-2. II.

The story of the development of forestry in the United States; The Public Domain, its acquisition, partitioning and disposal.

2 class hours and 1 seminar hour a week. Credit, 3.

WILDLIFE MANAGEMENT S-4. II. (Forest-Animal Relationships)

Effects of animals on the forest; and the effects of forest practices on wild animal production.

3 class hours a week. Credit, 3.

WOOD IDENTIFICATION S-2. II.

The gross structural and identification features of our most used North American woods. Laboratory practice in wood identification using macroscopic features.

2 2-hour laboratory periods a week. Credit, 2.

Although Massachusetts is predominately an urban-industrial state with 90 percent of its people living in towns and cities, agriculture is one of the top three industries of the State.

Ninety-five percent of Massachusetts' land area is open rural countryside. Ten percent of our population (about 430,000) live comfortably in these areas. About one-third of these rural folks (141,000) live on the 30,000 farms and depend upon agricultural production as the principal source of income.

The Massachusetts farm industry represents an investment in land, buildings, equipment and live stock of over 300 million dollars. Its gross income for 1946 was approximately 175 million dollars.

FRUIT GROWING

Professor Van Meter, Professor French, Assistant Professor Roberts,
Mr. Everson

The course in Fruit Growing prepares the student for successful participation in the activities of our many sided fruit industry. An essentially practical course, it emphasizes also the basic principles of plant growth which underlie sound cultural practices and the economic principles which bear upon marketing procedures and the business side of fruit growing. It provides a foundation on which increasing effectiveness may be developed through continued practical experience.

The University has about fifty acres of fruits easily reached from the classroom, and they are used freely for purposes of illustration and study. Most of the tree and small fruits commonly found in New England are grown here on a commercial scale. Many experiments and tests are in progress in the plantations, offering exceptional opportunities to the student for the practical study of plant reactions under many and varied conditions. Excellent commercial orchards near the campus provide a wealth of additional material for observation and study. Large markets are visited to afford valuable contacts with the main channels of crop distribution.

Equipment for instruction includes a modern storage and packing house in which there are several types of refrigerated and common storage, a quick freezing unit, and zero temperature holding rooms, all in operation within the University year. The principal types of orchard tools and machines, such as tractors, plows, harrows, cultivators, sprayers, dusters, and pruning and grafting tools are available for study and trial by students. Emphasis is placed on life histories and methods of control of all important insect, fungus and other pests. Materials used in pest control are studied in great variety.

Graduates of the course in Fruit Growing are found in positions of responsibility all over the Northeast. Some have established successful fruit farms of their own. Others, after gaining added practical experience, have risen to positions as managers or foremen in large orchards. Still others have entered the industrial field and are employed by supply and equipment firms or are engaged in marketing activities. Fruit Growing is an active and thriving industry which offers a field of continuing interest and many opportunities for profitable development to the earnest student.

Combination Courses: Fruit growing lends itself readily to combination with other branches of agriculture. The fruit course is already broad and includes most of the information likely to be needed by the student, but for special interests the following are suggested: Fruit Growing and Beekeeping, Fruit Growing and Live Stock, Fruit Growing and Poultry, Fruit Growing and Vegetable Growing, or small fruits with Floriculture or any of the above subjects.

Trains for Jobs Like These:

Skilled workers on fruit farms, operators, foremen, owners; packing house operators, managers of sales and distribution. Salesmen for commercial spray materials, orchard equipment, and fertilizers; fruit inspection and grading. Growers of specialty fruit crops.

Field trips will be required during the two years at an estimated cost of $25 per student.

Fruit Growing

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S1 (Farm Motors)
Agronomy S1 (Soil Management)
Forestry S3 (Forest Estimating and Mapping)
Fruit Growing S1 (Growing Tree Fruits)
Public Speaking S1
Vegetable Growing S1 (Principles of Vegetable Culture)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agricultural Engineering S14 (Repair of Farm Equipment)
Agronomy S2 (Fertilizers)
Fruit Growing S2 (Orchard and Vineyard Pruning)
Public Speaking S2
Vegetable Growing S2 (Principles of Vegetable Culture)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Engineering S9 (Drainage and Farm Structures)
Animal Husbandry S9 (Special Dairy Cattle Course)
Beekeeping S1 (Fall Management, Wintering Honey, and Bee Diseases)
Fruit Growing S5 (Harvesting, Packing, Storage and Marketing)
Fruit Growing S7 (Small Fruits)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S2 (Marketing)
Beekeeping S2 (Spring Management, Pollination and Honey Production)
Business English S2
Farm Management S2 (Farm Management and Accounts)
Fruit Growing S4 (Fruit Pests and Spraying)
Fruit Growing S6 (Advanced Fruit Growing)
Poultry Husbandry S10 (General Poultry Husbandry)

Electives

*Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

FRUIT GROWING S-1. (Growing Tree Fruits) I.

This course covers the planting and development of orchards and the management of bearing trees. The nature of the tree itself is stressed as the basis of sound cultural practices. The selection of sites and soils and varieties is studied for plantations of apples, pears, peaches, plums, and cherries. The handling of young trees to bring them into early profitable bearing is given special attention. The culture of bearing orchards is studied in detail to give an understanding of the factors that influence yield and quality of fruit. Methods of soil management are considered with reference to their long-time effects on tree and soil. The experimental plots afford exceptional opportunities to study cultural methods and many subjects are discussed in the orchards.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS.

FRUIT GROWING S-2. (Orchard and Vineyard Pruning) II.

This course aims to give the student a thorough training in the underlying principles and the practice of pruning apples, pears, peaches, cherries, plums and grapes. The bearing habit of each fruit is studied as a basis for effective pruning. Practice pruning in the University orchards is stressed as an important feature of the course. Instruction and practice in budding and grafting are included in this course. Bridge grafting and top working are given special attention.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS.

FRUIT GROWING S-4. (Fruit Pests and Spraying) II.

This course deals with the characteristics and behavior of insect and disease pests which attack fruit plants. Particular attention is given to the vulnerable points in their life cycles at which control measures are directed. A study of the principal spray materials and their uses is an essential part of the course.

The construction and care of spraying and dusting equipment is emphasized and students are required to use various types of implements in spraying and dusting trees in the orchard.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS.

FRUIT GROWING S-5 (Harvesting, Packing, Storage, and Marketing) I.

Handling the crop from tree to consumer is the field covered by this course. Methods of harvesting and appliances used are studied in the orchards. Practice in packing the most popular containers forms a prominent part of the laboratory work.

The principles of common and refrigerated storage are considered in detail and storage house construction is discussed, with a critical examination of several storages in use on or near the campus. Marketing methods as they relate both to distant and to local markets are given special consideration. A two-day field trip is a part of the course. Estimated cost, $10.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

MR. EVERSON.

FRUIT GROWING S-6. (Advanced Fruit Growing) II.

This course involves a critical study of tree behavior as a basis for orchard management. Information acquired in other courses and in placement training is brought to bear on important orchard problems. It is the aim of the course to familiarize the student with conditions under which fruit must be grown here, with current thought on the more recent developments, and with adjustments which are being made in the fruit industry of the Northeastern States.

Each student must be prepared to take one or more trips to prominent orchards or to leading fruit sections of the Northeast. Estimated cost, $15.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR VAN METER.

FRUIT GROWING S-7. (Small Fruits) I.

There are many unusual opportunities in Massachusetts for success in growing small fruits. This course deals with the establishment and management of plantations of strawberries, raspberries, blackberries, blueberries, currants, cranberries, and grapes. The aim is to make the course of the utmost practical value as well as to give an understanding of the fundamental principles on which practices are based.

The University has plantations of these fruits except Cranberries which are used freely for laboratory purposes. Berries which ripen in summer are frozen and held in excellent condition for study in this course.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR FRENCH.

FRUIT GROWING S-9. (General Course) I.

This course is intended to meet the needs of students in other majors who can devote one semester only to the subject of Fruit Growing. It deals with the practical side of growing tree and small fruits for home use and market.

Special attention is given to such questions as selection of sites, choice of varieties, grafting, pruning, spraying, soil management, harvesting, and storing. (Horticulture and Poultry majors.)

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR FRENCH.

FRUIT GROWING S-10. (General Course) II.

This course is a repetition of Fruit Growing S-9 primarily for the benefit of first year students who are specializing in Animal Husbandry.

4 class hours and 1 2-hour laboratory period a week. Credit, 5.

PROFESSOR FRENCH.

To provide food enough for only "fairly adequate diets" for all of the people of the United States 10 years hence, would require as many poultry products as are now produced, more fruits, 50 percent more vegetables and a third more dairy products. Per capita consumption of these commodities is increasing. Fortunately these are the important farm products produced in Massachusetts.

Massachusetts farmers are producing more now than ever before,—in their 327 years of history. Whether or not Massachusetts agriculture will continue to expand and prosper with the increasing demands for our products, depends upon our ability to increase farm production efficiency through research, education, and the adoption of improved practices such as animal breeding and feeding, plant breeding and fertilization, saving labor, and raising part of our own feed nutrients through improved hay and pasture production.

ORNAMENTAL HORTICULTURE

Professor Blundell, Mr. Procopio

The constantly increasing interest in development of grounds, both public and private, for use and enjoyment, has created a demand for men trained to handle the varied problems in the construction and maintenance of these grounds. The course in Ornamental Horticulture aims to make the student familiar with these various problems.

Men who have taken this course are to be found in such different jobs as foremen in nurseries, or proprietors of nurseries which they themselves have built up; superintendents on private estates, cemeteries, parks, and various public and private institution grounds; foremen for landscape construction firms, and some have developed their own business in landscape construction and grounds maintenance service.

With the whole campus as a laboratory, the student every day finds problems about him comparable to those he will meet when he goes out to work. The broad lawns, the walks and drives, the gardens, the greenhouses, the orchards, the vegetable plots, as well as the farms, supply all the various phases of work which will be encountered on estates, in parks, or in institution grounds. As far as practicable the student is given the opportunity to determine what these problems are and to solve them himself under expert supervision.

On the campus is to be found a large and excellent collection of mature trees, shrubs, and vines. From these plants the student is able to build up a background of plant knowledge; in identification; in propagation which is carried on in a special greenhouse for the purpose; in the handling of plants in various stages of their growth, in the nursery and on the campus; and in their ultimate care, pruning and protection against injuries of all kinds. Construction of roads, walks, drainage and other problems involving the moving of earth are especially valuable to those looking forward to landscape construction.

The courses in forestry are designed to give practical instruction in the elements of forest care and management with special reference to the problems that will be faced by one who is given the responsibility of managing farm or estate woodland. The necessary phases of forest measurement, silviculture and forest protection are included. Field work, carried out on the university forest of 755 acres at Mt. Toby, takes the form of demonstrations and practical field problems in forest care and management. Students in these courses work to a considerable extent under actual field conditions.

Trains For Jobs Like These:

Skilled workers in plant nurseries; gardeners, foremen or superintendents on private estates, public parks, cemeteries, and various public and private institution grounds such as state and government cantonments and hospitals, colleges and private schools; workers or foremen with landscape construction companies, real estate developments; owners and operators of small landscape maintenance businesses and nurseries, salesmen for seed and nursery concerns, plant propagators, town or city watershed foresters, botanic garden foremen.

Special requirements for students in Ornamental Horticulture are: Bailey's Standard Encyclopedia of Horticulture estimated at $20, and a draftsman's set estimated at $20.

Field trips will be required during the two years at an estimated cost of $20 per student.

Ornamental Horticulture

First Year

First Semester

(Sixteen Weeks Resident Instruction)
Agronomy S1 (Soil Management)
Agronomy S5 (Construction and Maintenances of Fine Turf Areas)
Floriculture SI (Garden Materials)
Horticulture S1 (Plant Materials)
Public Speaking S1
Vegetable Growing S1 (Principles of Vegetable Culture)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Agronomy S2 (Fertilizers)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S2 (Insect Pests of Ornamental Trees, Shrubs, and Flowers)
Horticulture S2 (Plant Propogation)
Public Speaking S2
Vegetable Growing S2 (Principles of Vegetable Culture)
Physical Education S2 (Required of women students).

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)
Arboriculture S5 (Shade Tree and Shrub Pests)
Business English S1
Forestry S3 (Forest Estimating and Mapping)
Fruit Growing S9 (General Course)
Horticulture S3 (Surveying and Mapping)
Horticulture S7 (Grounds Maintenance)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)
Agricultural Engineering S2 (Farm Motors)
Arboriculture S6 (Shade Tree and Shrub Pests)
Floriculture S2 (Greenhouse Management)
Floriculture S8 (The Uses of Herbaceous Plants)
Horticulture S4 (Landscape Construction Problems)
Horticulture S6 (Plant Materials)
Horticulture S8 (Grounds Maintenance)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

HORTICULTURE S-1. (Plant Materials) I.

Study of evergreen and deciduous trees used in landscape work, their distinguishing characters, and culture, with special reference to nursery and planting practice.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

PROFESSOR BLUNDELL.

HORTICULTURE S-2. (Plant Propagation) II.

This course will present the principles of plant propagation with special reference to their application to plant materials in nursery and greenhouse practice. The lectures are concerned with careful explanation of seedage, cuttage, graftage, layerage and division. In the laboratory the student propagates plants by each of these methods.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

MR. PROCOPIO.

HORTICULTURE S-3 (Surveying and Mapping) I.

Practice in the use of simple surveying instruments as tapes, compasses and levels used in the measurement of land surfaces, and the application of these instruments in landscape construction.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

MR. PROCOPIO.

HORTICULTURE S-4. (Landscape Construction Problems) II.

Continuation of Horticulture S-3, including the reading of landscape plans, figuring construction cost on grading work and garden construction problems, and setting stakes for landscape development from working drawings.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

MR. PROCOPIO.

Ornamental Horticulture

Horticulture S-6. (Plant Materials) II.

Study of shrubs, both evergreen and deciduous, and woody vines, to enable the student to recognize the plants used in ornamental plantings and to familiarize him with the handling of these plants both in nursery practice and landscape work. A two-day field trip will be required. Estimated cost, $10.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.
Professor Blundell.

Horticulture S-7. (Grounds Maintenance) I.

A course based upon the formulation and study of a work program which considers those essential operations contributing to successful horticultural management of grounds. The care of woody ornamental plants is included under the following heads: planting, pruning, maintenance of soil fertility, winter protection, and pest control.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.
Mr. Procopio.

Horticulture S-8 (Grounds Maintenance) II. April 1—Close of School.

A continuation of Horticulture S-7, taking up spring practices in grounds maintenance and follows the completion of Floriculture S-2.
1 class hour and 2 2-hour laboratory periods a week. Credit, 3
Mr. Procopio.

RELATED SUBJECTS IN OTHER DEPARTMENTS

Agricultural Economics S-1. (Farm Economic Problems) I.

The purpose of this course is to introduce students to the more important economic problems facing New England farmers. Increasing competition with other farm sections, long-time movements of farm prices and farm profits, farm credit, farm taxation; tariffs and other farm relief measures are some of the probems to be considered.

2 class hours a week. Credit, 2.

The Department.

Agricultural Economics S-2 and S-3. (Marketing) I. II.

This course deals largely with economic problems arising out of marketing farm products. Particular attention is given to marketing methods used in New England and to the comparison of local methods with methods used by farmers in competing sections. Principles and methods of co-operative marketing used by successful co-operative associations are studied in detail in order to show how New England farmers may meet competition from associations in other sections, either as individual producers or as officers or members of local associations.

2 class hours a week. Credit, 2.

The Department.

Instruction in agricultural economics is given with a view toward presenting the business side, or economics of agriculture. The required course is divided into two parts given in separate semesters. The approximate division of subject matter for each semester is indicated.

Agricultural Economics S-5. (Dairy Business Accounting) I.

Business arithmetic and bookkeeping are given consideration. The mathematics of fat determination, ice cream mixes, etc., are studied. An understanding of elementary bookkeeping principles involved in milk distribution also forms a part of the course.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

The Department.

Agricultural Engineering S-1 and S-2. (Farm Motors) I. II.

This course is a study of the principles of the gasoline engine and its accessories, as used in trucks, automobiles, tractors, and stationary work. Instruction is given in the laboratory by lectures, demonstrations, and exercises. This course also deals with the application of electricity to agriculture including electric motors.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Tague.

Agricultural Engineering S-3 and S-4. (Farm Shop) I. II.

This course gives instruction in the care and use of carpenters' tools through bench work, repair of farm equipment, and building construction. Practice in building forms, mixing and placing concrete, framing, cutting rafters, etc., make up this portion of the subject. Instruction in welding, pipe fitting, soldering, arc and gas welding, and the use of machinists' tools for the repair of farm machinery and miscellaneous farm equipment, together with a study of pumps and water supply systems make up the other portion of the work.

3 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Newlon and Assistant Professor Pushee.

Agricultural Engineering S-6. (Dairy Mechanics) II.

This course is planned for men who are fitting themselves to take charge of dairy plants or allied lines of work. It includes a study of steam boilers, pumps, steam traps, water filters and softeners, belting, electric motors, milking machines, and refrigeration plants.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Assistant Professor Tague.

Agricultural Engineering S-8. (Farm Structures) II.

A study of building materials; details of construction; simple structural mechanics; and the principles of design applied to farm buildings is made. Each student will design in detail one of the major farm buildings in which he is particularly interested.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Associate Professor Markuson.

Agricultural Engineering S-9 and S-10. (Farm Structures and Drainage) I. II.

A study of building materials; details of construction; simple structural mechanics; and the principles of design applied to farm buildings is made. Each student will design in detail one of the major farm buildings in which he is particularly interested.

About one-fourth of the time will be given to the study of land drainage and practice in the use of the engineer's level for the purpose of laying out and grading of drainage ditches.

1 class hour and 3 2-hour laboratory periods a week. Credit, 4.

Associate Professor Markuson.

Agricultural Engineering S-14. (Repair of Farm Equipment) II.

Instruction is given in welding, pipe fitting, soldering, gas and electric welding, and the use of machinists' tools for the repair of farm machinery and miscellaneous farm equipment, together with a study of pumps and water systems. (Fruit Growing majors.)

3 2-hour laboratory periods a week. Credit, 3

Assistant Professor Newlon.

Agronomy S-1. (Soil Management) I.

Every agricultural interest is vitally concerned with the soil, its adaptations and its management for plant production. This course treats of the selection of suitable soils for the special purposes of agriculture, horticulture and floriculture.

Laboratory includes training in the use and interpretation of the maps of the U. S. Soil Survey and in tests of soil texture, organic matter and soil acidity. Practical field work will be given in judging the crop adaptation and value of soils, and field demonstration of the use of tillage tools on the university farm.

As a field project the student will be required to make a study of some farm, nursery or florist's plant, from the standpoint of soil conditions and methods of soil management in relation to the enterprise as a whole.

2 class hours and 1 3-hour laboratory period a week. Credit, 3.

Assistant Professor Thayer and Mr. Zak.

AGRONOMY S-2. (Fertilizers) II.

This course deals with the origin, manufacture, purchase and use of commercial fertilizer materials. A study will be made of the interpretation of fertilizer formula, analysis and guarantee. Special attention will be given to the newer concentrated fertilizer materials and to those produced from atmospheric nitrogen. The laboratory work will give practice in the identification of fertilizer materials, in the caculation of fertilizer formulas, and in the preparation of fertilizer mixtures.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR THAYER AND MR. ZAK.

AGRONOMY S-4. (Field Crops) II.

The lecture hours of this course will be devoted to presentation and discussion of the most successful methods of fertilizing, cultivating, harvesting, and storing the field crops grown in New England. Special attention will be given to the choice of the best adapted varieties for the production of hay, pasture, corn, potatoes, and root crops.

The laboratory work will include the study of corn and potato varieties, identification of grass and weed species, and studies of purity and germination. Field observation of growing crops will be included as the season permits.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR THAYER.

AGRONOMY S-5. (Construction and Maintenance of Fine Turf Areas) I.

At the completion of this course the student should have a knowledge and appreciation of the requirements for the growing of lawns and sports turf.

He will have considered the construction of turf areas; seed identification, selection and sowing; the identification of turf grasses and their soil and fertilizer preferences, correct cultural practices, turf diseases and pests and their control.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSOCIATE PROFESSOR DICKINSON.

BACTERIOLOGY S-1. (Bacteriology and Rural Hygiene) I.

The reproduction, structure, growth, changes produced by the action of bacteria upon various substances and the methods by which disease producing bacteria of man and animals are disseminated will be studied. The proper use of disinfectants, vaccines and serums in the control and treatment of disease will be discussed. The purpose of the course is to present the problems of applied bacteriology in health, agriculture and industry. The sanitary production, handling and distribution of milk involving human and environmental contacts with a food often consumed raw is an important problem to be controlled by responsible citizens of the community. Discussions on milk include the various sources of milk infections, methods of controlling sanitary production and marketing and the detection and elimination of milk dangerous to the public health.

Water supplies are of especial importance to man. The construction of wells, cisterns, etc., will be briefly considered and the application of sanitary measures to prevent and control their pollution will be discussed. The proper treatment and disposal of private and municipal sewage presents a problem of no small importance. Work has been planned in this course to present some of the problems pertaining to the sanitary production and distribution of foods.

This course is designed to acquaint the student with the nature and importance of micro-organisms and thus better explain biological changes in nature and susceptibility to disease. (Animal Husbandry, Poultry and Dairy Manufactures majors.)

3 class hours a week. Credit, 3.

ASSISTANT PROFESSOR PERRIELLO.

BACTERIOLOGY S-4. (Dairy Bacteriology) II.

Bacteria and other micro-organisms are the responsible agents for changes which occur in milk, and for the contagion which sometimes causes disease. They are found in milk at times when leaving the udder. They get in with the dust and dirt while milking and they adhere to the dairy utensils which carry them over from one milking to the next. From the cow to the consumer there is the constant presence of these micro-organisms to contend with, on the one hand, and to foster on the other.

Many of these changes occuring in milk are undesirable, such as ropy milk, sour milk, bitter milk, tainted milk, etc. Many of these changes are encouraged as the ripening of cream for butter, of milk for cheese, of milk for milk drinks. The former are fought; the latter fostered.

Micro-organisms of typhoid fever, scarlet fever, diphtheria and other diseases find their way by means of milk to the consumer and produce epidemic forms of these diseases.

Various bacteriological tests for the estimation of the numbers and types of organisms in milk are studied. Special attention is given to the interpretation of results indicated by the standard plate, Breed, methylene blue, and Burri methods of testing milk quality. Laboratory procedures for the determination of special groups of bacteria not normally found in milk, such as fecal contaminants and heat resistant organisms, are discussed. The proper use of these methods will quickly enable one to locate the source of trouble and check any further continuance.

It is evident, therefore, that to handle milk and milk products safely it is desirable to know something of the agents which are the source of so much attention in the dairy. This indicates the nature of this course, which is required of all students who elect dairying as one of their special lines of work.

3 3-hour laboratory periods a week. Credit, 5.

ASSISTANT PROFESSOR PERRIELLO.

BEEKEEPING S-1. (Fall Management, Wintering, Honey, and Bee Diseases) I.

The students are given an opportunity for individual handling of bees in the early fall, and field studies are made of the bee colony and its organization. Studies and practice in fall feeding are followed by a similar treatment of winter protection and the bees are then prepared for winter. During the latter part of the semester the surplus honey is extracted and prepared for market, a laboratory study made of the product and, finally, the commoner bee diseases are discussed and methods of control pointed out.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR SHAW.

BEEKEEPING S-2. (Spring Management, Pollination, and Honey Production) II.

The first part of the semester is occupied in assembling and studying the equipment used in beekeeping, but as soon as the weather permits, work is resumed on the bees in the apiary. Studies are made in spring management; pollination in the apple orchards is particularly stressed, and attention is then turned to the preparation of the colonies for honey production.

Throughout the entire course, wherever possible, the work is made practical and individual, enough theory being given so that the student will understand the reasons for his manipulations.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Assistant Professor Shaw.

Botany S-1. (Tree Physiology) I.

A study of the living tree is provided in this course. Functions of tree roots, leaves and trunk in obtaining and using water, air and nutrient materials are considered. Included among the vital activities of trees are: (a) chemical changes in building up, transfer, and breaking down of tree substances; (b) changes involved in growth, development, and reproduction; (c) changes in response to external stimuli.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Kozlowski.

Botany S-2. (Diseases of Trees and Shrubs) II.

This course is planned for students in Horticulture. It deals with the nature and causes of disease in plants; types of disease affecting trees, shrubs, and herbaceous plants; methods of combatting plant diseases.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Assistant Professor Kozlowski.

Business English S-1 and S-2. I. II.

This course is designed to cover review work in the fundamentals of grammar and composition, and to give students training and practice in writing various types of business letters, reports, advertising copy, and news articles relating to their special fields.

3 class hours a week. Credit, 3.

The Department.

Business Management S-1. I.

This course is designed primarily for students majoring in Floriculture. It involves a study of records and accounts used by florists; costs and prices; uses of capital and credit; house and store management; advertising; buying and selling; economic use of labor and equipment; general business trends as affecting the flower business; how the florist should make adjustments to meet economic changes; analyses of going concerns; and finally a bringing together of all information studied and applying it to the successful organization of a business. The entire course is to be made as applicable and practical as possible.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Professor Barrett.

Business Management S-3. I.

This course is designed primarily for students majoring in Dairy Manufactures. The principles of business organization and management are considered in relation to the successful operation of a dairy plant. The course includes a study of the following: various records and accounts used by dairies; costs and prices; uses of capital and credit; economic trends as affecting the business; how to make adjustments in the business to meet economic changes: analyses of different types of going concerns; and finally a bringing together of all the information studied and applying it to the successful organization of a business.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Professor Barrett.

ENTOMOLOGY S-2. (Insect Pests of Ornamental Trees, Shrubs, and Flowers) II.

A course designed to acquaint the student with the major pests of the plants mentioned. Class will be divided: Arboriculture and Ornamental Horticulture students in Section I; Floriculture students in Section II.

1 class hour and 1 2 hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR SHAW.

ENTOMOLOGY S-6. (Turf Insects) II.

A course designed to acquaint the student with the principal pests of turf. General introduction to Entomology, followed by study of specific pests of turf.

1 class hour and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR HANSON.

FARM MANAGEMENT S-1 and S-2. (Farm Management and Accounts) I. II.

The work in this course involves a study of farm records and accounts; costs and prices of farm products; uses of capital and credit; types of farming, selection of crop and live stock enterprises; size, diversity and production as related to the successful farm business; farm layout and arrangement; economic use of labor, power and equipment; detailed analysis of both successful and unsuccessful farms, how the farmer should make adjustments to meet economic changes; and finally, a bringing together of the information gained and applying it to the successful organization of a farm business.

Actual farm records are used to illustrate the above points. The entire course is made as applicable and practical as possible.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR BARRETT.

Note.—Farm Management will be given both semesters. The first semester will be for students majoring in Animal Husbandry; the second semester for students majoring in Poultry Raising, Fruit Growing and Vegetable Growing.

FARM MANAGEMENT S-3. (Efficiency in Farming Operations) I.

For Freshman. This is an introductory course to the regular Farm Management work which comes in the second year. It is in no sense a theoretical consideration but rather a study of the practical aspects of the efficiency of the many day-to-day jobs found on various types of farms. In brief, a careful analysis is made of the "one best way" of doing the jobs. The course involves a study of farm layout, building layout, economical use of machinery and equipment, and efficiency in hand operations. The primary objective is to point out ways of reducing farm labor costs. Motion pictures will be used to illustrate good methods versus poor or inefficient methods.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

PROFESSOR BARRETT.

FOOD TECHNOLOGY S-2. (Basic Principles, Freezing, Canning and Pickling) II.

Principles of food preservation including refrigeration and modern locker storage management are covered. Work is given in the use of packaging materials and the examination and grading of food products. Three field trips will be required. Estimated cost $10.00.

1 class hour and 1 4-hour laboratory period a week. Credit, 3.

MR. MORSE.

FOOD TECHNOLOGY S-4. (Special Products) II.

The class and laboratory exercises in this course are planned to meet the needs of students majoring in Dairy Manufactures. General principles of food preservation and their application to the subject of dairying are discussed in class exercises. Crushed fruits, fruit juices, syrups, flavored syrups and other products which are utilized in the dairy trade are manufactured and tested.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR LEVINE.

FORESTRY S-3. (Forest Estimating and Mapping) I.

The principles of timber estimating; determination of the volume and value of the forest growing stock; volume growth of trees and forest stands; wood as an annual or periodic crop. Field work includes a problem in practical timber estimating and forest mapping.

1 class hour and 1 4-hour laboratory period a week. Credit, 3.

PROFESSOR HOLDSWORTH.

FORESTRY S-4. (Forest Production) II.

The basic principles of applied silviculture; methods of cultivating and reproducing the forest; seeding and planting in forest practice with especial reference to New England conditions; forest characteristics of regionally important tree species; systematic demonstration and field practice in marking stands for the intermediate cuttings and reproduction methods.

1 class hour and 1 4-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR STICKEL.

HYGIENE S-1. I. (For Freshmen)

Lectures on personal hygiene, including the physiological basis for sound health habits, the importance of the systematic planning of a student's daily program in order to provide the proper amounts of time for study, with suitable periods of sleep, relaxation, recreation, and sports; posture, appropriate types of exercises, proper nutrition, social adjustment, the necessity for frequent medical, optical, and dental advice; sanitation and group health requirements.

1 class hour a week. Credit, 1.

THE DEPARTMENT.

PRACTICAL SCIENCE S-7 and S-8. I. II.

This is a course in applied sciences, chiefly in the fields of chemistry and physics, as they are tools serving the needs of the dairy industry. In general, the course is designed to give an introduction to scientific thought and phenomena by means of lectures, textbook study and classroom demonstrations. The emphasis is entirely built around the practical problems in the student's field of work.

2 class hours and 1 2-hour laboratory period a week. Credit, 3

ASSISTANT PROFESSOR EVERSON.

PUBLIC SPEAKING S-1 and S-2. I. II.

The aim of the course is to give the student confidence in himself while speaking before groups, and to have him acquire some knowledge of, and practice in, the more practical types of public speaking.

1 class hour a week. Credit, 1

THE DEPARTMENT.

VETERINARY SCIENCE S-1. (Animal Sanitary Science) I.

Sections for Animal Husbandry, Dairy Manufactures, and Poultry Husbandry Major students. Conservation of the health of animals is the keystone of successful animal husbandry. This course acquaints students with the essentials upon which the health of animals depends. In order that students may later guard the animals in their charge, attention is given to conditions favoring communicable and non-communicable diseases, and to prophylactic measures.

3 class hours a week. Credit, 3.

PROFESSOR LENTZ.

VETERINARY SCIENCE S-2. (Applied Animal Sanitary Science) II.

A continuation of S-1. The animal Husbandry section will study the more common diseases of cattle, horses, sheep, and swine, and the Poultry Husbandry section will study poultry diseases. Causes; development; emergency; control; eradication; and prophylactic measures will be emphasized.

3 class hours a week. Credit, 3.

PROFESSOR LENTZ.

PHYSICAL EDUCATION FOR WOMEN

Professor Totman

This program aims at an all-round development of the student. It gives the student activity adapted to her needs; assists in overcoming remediable physical defects and bad health habits; it encourages good health standards, helps her build up skill in sports and games and swimming and leaves her with possibilities for spending leisure time wisely.

Required Courses

Physical Education S-1. I.

Outdoor season—field hockey, archery, tennis, swimming, volleyball. Indoor season—badminton, special gymnastics, games, swimming, dancing.

3 class hours a week. Credit, 2.

The Department.

Physical Education S-2. II.

Indoor season—badminton, special gymnastics, swimming, volleyball, bowling, dancing. Outdoor season—archery, swimming, softball.

3 class hours a week. Credit, 2.

The Department.

Elective Courses

Physical Education S-3 and S-4. I. II. (For Seniors)

The senior program is arranged to give the student an opportunity to express her desire for wholesome physical recreation, to further develop desirable character traits and social qualities and qualities of leadership.

3 class hours a week. Credit, 2.

The Department.

PHYSICAL EDUCATION FOR MEN

MR. KOSAKOWSKI, ASSISTANT PROFESSOR DERBY

REQUIRED COURSES

PHYSICAL EDUCATION S-1. I. (Recreation.—For Freshmen. Outdoor games.)

The following outdoor games are taken up: Softball, touch football, and swimming. Men may elect football or cross-country. The course aims to give every man the opportunity to develop sufficient control over his body to enable him to get pleasure from physical activities and to establish correct health habits. Not required of veterans.

2 laboratory hours a week for first half semester. Credit, 1.

THE DEPARTMENT.

PHYSICAL EDUCATION S-5. I. (Recreation.—For seniors. Outdoor games.)

Includes the games of volleyball, softball and swimming, with the object of giving the men exercise material for use in after school days. Men may elect football or cross-country. Not required of veterans.

2 laboratory hours a week for first half semester. Credit, 1.

THE DEPARTMENT.

ELECTIVE COURSES

PHYSICAL EDUCATION S-4. II. (Recreation.—For freshmen and seniors.) (Basketball and Indoor Track.) January-March.

Students electing this course must be regular members of the basketball, or indoor track squads and report regularly for practice with those squads.

Credit, 1.

THE DEPARTMENT.

PHYSICAL EDUCATION S-6. II. (Recreation.—For seniors.)

The senior class is divided into three or four major groups according to the number of students electing the spring physical education program. An intramural softball league schedule is played and an indoor and outdoor track meet run off. The group winning the highest average in all three events will have its name engraved on the Stockbridge School spring athletic trophy.

Credit, 1.

THE DEPARTMENT.

SHORT COURSES AT THE UNIVERSITY OF MASSACHUETTS

Short courses are based on the idea that the motive which inspires study is the most significant factor in study itself, and that this motive rises when the student himself realizes he faces a problem that calls for a solution. Therefore there is no age limit. Enrolled in short courses are the young and the old, the experienced and the inexperienced, the theoretical and the practical. In this grouping there is a value, since students learn from each other as well as from the instructors. Practically all Short Course students intend to make a direct application of the knowledge given. Hence the aim of Short Course work is to offer the largest amount of information and training in agricultural and horticultural lines in the shortest possible time. During the past twenty years Short Courses have served thousands of students in this Commonwealth, and the demand for these courses since the war has increased greatly due to both veteran and non-veteran demand.

DIRECTORY OF INFORMATION

A. The University

Those desiring University catalogs and other pamphlets giving full information relative to entrance requirements, courses of study, expenses, opportunities for student labor, and so forth, and those with questions regarding admission to the university, either to the freshman class or to advanced standing should address William L. Machmer, Dean of the University, Amherst, Mass.

B. The Graduate School

Questions relating to courses offered leading to the degrees of Master of Science and Doctor of Philosophy, admission and work required, should be addressed to Fred J. Sievers, Director of the Graduate School, Amherst, Mass.

C. Short Courses

For information concerning the Short Course Units, the Stockbridge School of Agriculture, write or apply to Roland H. Verbeck, Director of Short Courses, Amherst, Mass.

D. Correspondence Courses

Correspondence courses are offered in Apple Growing; Beekeeping for Amateurs; Commercial Floriculture; Commercial Vegetable Growing; Farm Management; Home Flower Gardening; Nursery Culture; Poultry Husbandry. For detailed information write to Professor Alden P. Tuttle, French Hall, University of Massachusetts, Amherst, Mass.

FORM I

APPLICATION FOR ENROLMENT
IN THE
STOCKBRIDGE SCHOOL OF AGRICULTURE

Name ....Date ....

City or
Town ....Street ....State ....

Present Occupation ....Age ....

School or College Attended:

Name of School ....Number of Years in High School..................

Place ....Are you a Veteran?.................

Indicate by a check mark the course in which you desire to register. Do not check more than one.

1. Animal Husbandry (Dairy Farming)
2. Dairy Manufactures (Milk Plant Operation)
3. Poultry Husbandry
4. Arboriculture
5. Commercial Vegetable Growing
6. Fine Turf Maintenance
7. Floriculture
8. Food Management (For Hotel and Restaurant Trade)
9. Forestry
10. Fruit Growing
11. Ornamental Horticulture (Landscape Gardening)

References.—I am personally acquainted with the above applicant, and know.................... to be of good moral character, industrious, studious, and physically capable. Not required of veterans.

1. Name .... Position.....................

Address ....

2. Name .... Position.....................

Address ....

(Two references are required, and should not be members of your own family. Your minister and your teacher, or a former employer, are desirable. These persons should sign the application themselves.)

Mail this blank to Roland H. Verbeck, *Director of Short Courses*
University of Massachusetts, Amherst, Mass.

Important.—Be sure to file citizenship certificate if State tuition rate is claimed. Not required of veterans.

FORM II

CERTIFICATE OF CITIZENSHIP

The University of Massachusetts charges a tuition fee of $200 a semester to students who are not residents of Massachusetts. In order to satisfy the university authorities that an applicant is entitled to state tuition of $50 a semester, they require a statement signed by the clerk of the city or town in which the applicant resides, certifying to the fact that the parent or guardian of the applicant is a legal resident of said city or town. Where the guardian is certifying to this statement, it will be necessary for him to furnish copies of his appointment by the court. Such a statement may be made on the form below. If this is not presented when the student registers, the Treasurer has no option but to collect tuition on the above basis. When requesting the City Clerk to sign this certificate, an applicant for admission to the university should give the name and address of the parent or legal guardian unless he himself is of legal age.

This is to certify that I am the father..........mother..........legal guardian..........

of ....
Student's Name

Signed ....

This is to certify that on the date specified below (Insert name of parent or guardian)

....is a legal resident of ....
Parent's Name

...., Massachusetts.
Town or City

Signed ....
Town or City Clerk

Date ....
Seal

Mail this blank to Roland H. Verbeck, *Director of Short Courses*
University of Massachusetts, Amherst, Mass.

This certificate must be filed with application blank if lower tuition rate for citizens of Massachusetts is to be secured. Not required of veterans.

GRADUATES — 1947

Everett Ahern	Wellesley, Massachusetts
*Baxter Smith Allen	Pelham, Massachusetts
*Louis Amell, Jr.	North Adams, Massachusetts
Burton Richard Anderson	Wellesley, Massachusetts
*Frederick George Bastian	North Andover, Massachusetts
*Harry Osgood Bateman, Jr.	Winchendon, Massachusetts
Richard Whittemore Bemis	Spencer, Massachusetts
*William Edwin Benson	Lynn, Massachusetts
*Herbert Alfred Berthel	Melrose, Massachusetts
Elsie Lena Bissonnette	Indian Orchard, Massachusetts
*William Richard Cafarella	Medford, Massachusetts
*Robert Henry Capstick	Framingham, Massachusetts
*Thomas Frederick Carleton, Jr.	Medford, Massachusetts
*William Arthur Carter	Worcester, Massachusetts
*Frank Robert Clapp	Northampton, Massachusetts
*Leo Franklin Clark	Framingham, Massachusetts
James Taber Collingwood	Greenfield, Massachusetts
*John Francis Crudden	Hartford, Connecticut
Gurna Christine Cummings	Marshfield, Massachusetts
Chester Armstrong Damon	Kingston, Rhode Island
Robert John Della Torre	Willimansett, Massachusetts
Arthur Welling Dexter	Wakefield, Rhode Island
David Gilbert Dixon	Bernardston, Massachusetts
Herbert Winslow Dodge	Cambridge, Massachusetts
*Thomas Francis Dunlavey, Jr.	Lowell, Massachusetts
*Robert Sylvester Ellsworth	Chester, Massachusetts
Cynthia Ann Foote	Winchester, Massachusetts
Helen Mary Foote	Pelham, Massachusetts
Thomas Raymond Fox	East Longmeadow, Massachusetts
*Edward Fred Garland	Somerville, Massachusetts
Nellie Elvira Garrett	West Springfield, Massachusetts
*Lawrence James Geoghegan	Framingham, Massachusetts
Sanford Theodore Goldstein	New Bedford, Massachusetts
Philip Neri Good	Randolph, Massachusetts
*George William Grant	South Hadley, Massachusetts
*Richard Warren Graves	Sunderland, Massachusetts
*George Bernard Greaney, Jr.	Holyoke, Massachusetts
Anne Margaret Grigonis	Sunderland, Massachusetts
Patricia Ann Hamilton	Lake Placid, New York
*Boyd Edwin Hayward	Manomet, Massachusetts
*Robert Edwin Healey	Springfield, Massachusetts
*Lawrence Holden	Holyoke, Massachusetts
Harold Edward Holm	Milton, Massachusetts
*Claremont Holmes	East Bridgewater, Massachusetts
*Lawrence Wayne Huston	Lancaster, Massachusetts
Roger Leete Ives	Tewksbury, Massachusetts
*Benjamin Sawyer Keyes, Jr.	Harvard, Massachusetts
*Richard Dwight Keyes	Florence, Massachusetts
*Stephen David Kristof	East Longmeadow, Massachusetts
*Lawrence Edward Lampro	Becket, Massachusetts
James Henry LaSalle, Jr.	Whately, Massachusetts
*Thomas Frederick Lee	Brookline, Massachusetts
Robert Francis Lucey	Worcester, Massachusetts
*Roy Irving Martin	Mansfield, Massachusetts
*Leon Joseph Menard, Jr.	Fall River, Massachusetts
*Robert Philip McGoldrick	Worcester, Massachusetts
Thomas Morgan O'Brien	Fairfield, Connecticut
*Raymond Brendon O'Connell	Saxonville, Massachusetts
*Warner Richard Ott	West Springfield, Massachusetts
*Vito Anthony Patrissi	West Hartford, Connecticut
*Erick Birger Pearson	Worcester, Massachusetts
William Henry Pearson	Belmont, Massachusetts
*Wentworth James Peckham	Springfield, Massachusetts
*Edwin Francis Pelosky	West Deerfield, Massachusetts
*Lloyd Albert Pickard	Plymouth, Massachusetts
*Thomas William Ridgway	West Springfield, Massachusetts
*Constantine Anthony Roszko	Worcester, Massachusetts
*Rudolph Joseph Rotondi	Stoneham, Massachusetts
*Albert Gerald Rouleau	Lancaster, Massachusetts
*George Emil Saari	New Ipswich, New Hampshire
*Louis Bulman Sanborn	Andover, Massachusetts
*Stanley Warner Sansom	Quincy, Massachusetts
*Robert Morton Scott, Jr.	North Hadley, Massachusetts
Richard Lyman Sedgwick, Jr.	Dalton, Massachusetts
*Nathan Goodwin Sherwood	Hadley, Massachusetts
*Ralph Edward Smith	Merrimac, Massachusetts
*Abner Solin	Holyoke, Massachusetts
*Robert Lawrence Somers	West Roxbury, Massachusetts
*Stanley Marrion Spencer	Pepperell, Massachusetts
*Charles Herbert Stone	Worcester, Massachusetts
Alex William Szymanski, Jr.	Pittsfield, Massachusetts
*David Hunter Tait	Palmer, Massachusetts
Walter William Thiem	Lawrence, Massachusetts
Frederick Irving Turner	Great Barrington, Massachusetts
Gordon Arno Wade	Granby, Massachusetts
John Lincoln Wallace	North Grafton, Massachusetts

*Walter Burtis White	Braintree, Massachusetts
*John Clifford Wilhelm	Mansfield, Massachusetts
*Joseph Henry Witaszek	West Warren, Massachusetts
*Donald Prouty Young	Boylston, Massachusetts
*Edward James Young	Springfield, Massachusetts
*Wallace Erwin Young	Rutland, Vermont

AS OF THE CLASS OF 1943

*Alain Wiener deLeiris	Cambridge, Massachusetts
*Gilles Wiener de Leiris	Cambridge, Massachusetts

———*Veterans—World War II

CLASS of 1948

	Home Address	*Amherst Address*
Adamo, John Silvio	Plymouth	Commonwealth Circle R-31
Adriance, Harry Lawrence	Pelham	367 North Pleasant Street
Ahearn, Joseph Francis	Belmont	Commonwealth Circle R-20
Allen, James Charles	Andover	49 Fearing Street
Anderson, Robert Lincoln	Roslindale	148 East Pleasant Street
Anthony, Richard Pemberton	Boston	798 North Pleasant Street
Arnold, John Armstrong	Lunenburg	8 Sunset Avenue
Atkinson, Ronald Leonard, Jr.	Springfield	367 North Pleasant Street
Bacon, Earl Ransom	Amherst	318 Lincoln Avenue
Baker, Pauline Ann	Belchertown	Belchertown
Barbas, James	Woburn	Commonwealth Circle R-31
Beaulieu, Gerard William	Worcester	Commonwealth Circle R-32
Belden, Richard Drew	North Hatfield	North Hatfield
Benotti, Louis William	Mendon	Commonwealth Circle R-32
Bergstrom, Carl Everett	Clinton	8 Sunset Avenue
Best, Robert Arthur	North Dartmouth	Commonwealth Circle R-33
Billings, Kenton Holmes	North Amherst	North Amherst
Bishop, Robert Booth	Palmer	Commonwealth Circle R-33
Black, Harold Everett	Spencer	8 Sunset Avenue
Black, Hollis Melville, Jr.	East Braintree	77 North Prospect Street
Bostick, Warren John, Jr.	West Springfield	Strong Street
Bower, Donald Edward	Arlington	Commonwealth Circle P-11
Bowles, Donald Loner	Middleboro	798 North Pleasant Street
Boyle, Chester Leo, Jr.	East Weymouth	Commonwealth Circle P-4
Bragg, Fred Garland	Shelburne Falls	Shelburne Falls
Brown, Arthur Franklin	Danvers	367 North Pleasant Street
Brown, Thomas Orlando	Roxbury	39 Paige Street
Burford, William Gardner	Palmer	Leverett
Burnett, Roger Willis	Conway	Commonwealth Circle P-2
Bultler, Denford Nelson	Florence	Florence
Carlson, Robert Carl	Worcester	264 North Pleasant Street
Carlson, Ronald Irvin	Hampden	South East Street
Carter, James Manard	Hyde Park	Federal Circle B-5
Cauley, Henry Robert	Holyoke	Holyoke
Chambers, Lawrence Edward	Needham	South East Street
Chapin, Correll Cowles	Sheffield	Commonwealth Circle P-11
Chase, Ralph Edmond	Dalton	925 North Pleasant Street
Chase, Theodore	Sheffield	902 North Pleasant Street
Childs, Walter Lathrop	Manomet	367 North Pleasant Street
Chisholm, Donald Bruce	Stoughton	South East Street
Ciesla, Henry John	Chicopee Falls	461 North Pleasant Street
Clark, George, Jr.	Tolland	Northampton
Clark, John Lewis	Tolland	41 High Street
Colella, Paul Pasquale	Readville	8 Sunset Avenue
Comaskey, William Patrick	Lancaster	Commonwealth Circle P-12
Comley, John Ridgeway	Bedford	1039 North Pleasant Street
Corbut, David Ignatius	Holyoke	Holyoke
Coty, John Joseph	Pittsfield	Commonwealth Circle Q-1
Cover, Albert Louis	Boston	Commonwealth Circle Q-2
Craffey, Joseph Edward	Dorchester	269 North Pleasant Street
Crane, Francis Richard	Leominster	461 North Pleasant Street
Crawford, William John, Jr.	Whitinsville	Commonwealth Circle P-12
Crichton, Alexander Leggete	Wollaston	12 Colony Court
Crittendon, Richard Hugins	Otis	Commonwealth Circle P-13
Crompton, William Henry	Bedford	8 Sunset Avenue
Curley, James Denis	Hingham	616 Main Street
Curley, Robert William	Hingham	616 Main Street
Czelnusniak, Edmund Joseph	Easthampton	Easthampton
Davern, William Paul	Webster	13 Colony Court
Davis, Guerdon Crowell, Jr.	Beverly Farms	12 Colony Court
Davis, Hugh Cuthbert..	Shirley	Commonwealth Circle Q-3
Day, Jacqueline	East Pepperell	Abigail Adams
Delano, Philip Wesley, Jr.	Duxbury	8 Sunset Avenue
Desjarlais, Francis Edward	Willimansett	367 North Pleasant Street
Desmond, Edward James	Amherst	241 Northampton Road
DiCarlo, Mario	Newton Centre	12 Colony Court
Dickson, Fay Aileen	Barre	Abigail Adams
DiFazio, Vincent James	Beverly	375 North Pleasant Street
Dole, Philip Earl	Cambridge	North Hadley Road
Donlin, John Joseph	Oxford	Commonwealth Circle Q-6
Donovan, Urban Thomas	Waltham	Commonwealth Circle P-13

	Home Address	*Amherst Address*
Durant, Louis, Jr.	Attleboro	North Hadley Road
Edwards, Judson Frederick	Worcester	Commonwealth Circle P-5
Eisenhaure, Alfred Stephen	North Reading	23 East Pleasant Street
Eisenhaure, John Danforth	North Reading	23 East Pleasant Street
Eldredge, David William	Wareham	Commonwealth Circle Q-4
Elliot, John James, Jr.	Readville	8 Sunset Avenue
Ellsworth, Richard Albert	Chester	Commonwealth Circle P-14
Ensom, William Arthur	Spencer	242 Lincoln Avenue
Ernst, Philip Ernest	Jamaica Plain	8 Sunset Avenue
Ezekiel, George Carlton	Feeding Hills	Commonwealth Circle R-35
Ferzoco, David Francis	Readville	8 Sunset Avenue
Fiorini, Anthony Thomas	Pittsfield	358 North Pleasant Street
Flint, William Wallace, Jr.	Winchendon	367 North Pleasant Street
Flood, Richard Thomas	Brookline	Commonwealth Circle Q-7
Flynn, John Joseph	Holyoke	20 Kendrick Place
French, Wellington Armstrong	Stockbridge	119 State Street
Fuller, Robert Kempton	Haverhill	367 North Pleasant Street
Gagnier, Leo Gilbert	Holyoke	Holyoke
Gillon, Vincent Paul	Holyoke	Holyoke
Glazier, Calvin Douglas	Leverett	Leverett
Glazier, James Lewis	Leverett	Leverett
Gold, Irving	East Longmeadow	Commonwealth Circle Q-7
Grandy, David Marshal	Hudson	Commonwealth Circle Q-1
Graveline, Joseph Omer	Three Rivers	Three Rivers
Greenleaf, Richard William	Saugus	Commonwealth Circle S-26
Griffin, Fred Fleming	Bloomfield, Conn.	242 Lincoln Avenue
Grimes, Eva Flora	Oakham	Abigail Adams
Guidaboni, Norman Enselmo	Plymouth	Commonwealth Circle S-25
Hall, Charles William	Still River	12 Colony Court
Hall, Lyman Lawson	Webster	13 Colony Court
Hamilton, Russell Wilson	East Pepperell	461 North Pleasant Street
Harnoise, Raymond Harold	East Templeton	616 Main Street
Hennessy, Donal Brian	Cherry Valley	Commonwealth Circle Q-8
Heustis, Robert Cummings	Belmont	Commonwealth Circle Q-8
Hoftyzer, Ernest Cadman	Wellesley Hills	Commonwealth Circle P-2
Hogg, Robert Thomas	Melrose	Cushman
Holdman, William Patrick, Jr.	Reading	Commonwealth Circle P-14
Holopainen, Eino Edwin	Hubbardston	38 Lessey Street
Jewett, Everett Grenville	Ipswich	Commonwealth Circle P-15
Johnson, Richard Francis	Reading	39 Old Town Road
Kachur, Charles William	South Hadley Falls	367 North Pleasant Street
Knaust, Ralph Arthur	Clinton	Commonwealth Circle Q-9
Knowles, Frederick Gilbert, Jr.	Amherst	R. F. D. No. 2
Kowal, Maurice Leo	Grafton	Commonwealth Circle R-21
Kristof, Francis Paul	East Longmeadow	242 Lincoln Avenue
Lawrence, Roger Wallace	Winchendon	Commonwealth Circle P-15
LeBeau, Kenneth Dedrick	Wellesley Hills	Commonwealth Circle Q-10
Lebeaux, Reuben Ely	Shrewsbury	73 Fearing Street
Leonard, David Warren	Abington	12 Colony Court
Leppaniemi, Aarne Mattias	Fitchburg	115 State Street
Lindquist, Charles William, Jr.	Melrose	367 North Pleasant Street
Lord, George Walker, Jr.	Holliston	25 Nutting Avenue
Lukens, John Philip	Boston	41 Cottage Street
Lurvey, Mark Dunnells	Newton Lower Falls	Commonwealth Circle Q-10
Maloney, William Richard	Springfield	Commonwealth Circle P-1
Mangan, Thomas Norris	South Boston	358 North Pleasant Street
Manning, Earl Berry	Taunton	Sunderland
Markey, Richard Francis	Wellesley	8 Sunset Avenue
Martin, Bradford Robinson	Agawam	Agawam
Mathieu, Henry Arthur	Southbridge	77 North Prospect Street
Merlini, Silvio Carl	North Adams	358 North Pleasant Street
Midgley, Malcolm Clegg, Jr.	Worcester	38 Lessey Street
Miller, Woodrow Henry	Springfield	Springfield
Mitchell, DeWitt	Medford	Shutesbury
Mochrie, Kenneth Stephens	Chelmsford	Commonwealth Circle Q-12
Moore, George James, Jr.	Worcester	358 North Pleasant Street
Murphy, Paul Joseph	Oakham	Commonwealth Circle P-7
MacDonough, Robert James	Watertown	Commonwealth Circle Q-11
McGovern, Joseph Thomas	West Springfield	13 Colony Court
McGrath, William Joseph	Woronoco	Woronoco
MacGray, William Frederick	Needham	12 Hallock Street
McManus, Martin Stephen	Worcester	Commonwealth Circle Q-11
McNulty, Edmund Charles	Roslindale	11 Allen Street
Nicholson, Malcolm McLeod	Wareham	Commonwealth Circle Q-13
Niinimaki, Eino Evert	Fitchburg	115 State Street
Nilsson, Richard Elmer	Avon	Commonwealth Circle Q-13
Norwood, Harry Simeon	Shelburne Falls	Shelburne Falls
O'Connell, Bernard Hugh	Florence	Florence
O'Leary, Paul Joseph	Worcester	Commonwealth Circle P-7
Pease, Robert Dwight	Templeton	Commonwealth Circle P-5
Perkins, John Rogers	Middleboro	461 North Pleasant Street
Pfeiffer, Peter William	Syracuse, New York	52 North Prospect Street
Plante, Arthur John	Worcester	North Hadley Road
Poole, William Carlton	Holbrook	South Amherst
Postizzi, James Joseph	Boston	Commonwealth Circle Q-14
Pratt, Herman Sawyer	East Weymouth	Commonwealth Circle Q-15
Quinn, James Joseph	Whitinsville	Commonwealth Circle P-6
Rae, William Alfred, Jr.	Arlington	Pelham Road

	Home Address	*Amherst Address*
Reid, Charles Dondale	Wayland	Commonwealth Circle Q-13
Richardson, Betsy Amy	West Brookfield	Abigail Adams
Rinehart, Lois Marie	Weston	Abigail Adams
Rizos, Charles Nicholas	Lowell	Commonwealth Circle P-3
Roaf, George Malcolm	Melrose	291 North Pleasant Street
Rohan, Thomas Grant	Holyoke	Holyoke
Ross, George Douglas	Bedford	1039 North Pleasant Street
Ross, John James	West Cummington	450 South Pleasant Street
Rouleau, John Charles	Holyoke	Holyoke
Sarkisian, Sahag Sam	Lowell	Commonwealth Circle P-6
Schlicke, Robert Shepherd	Brookline	108 High Street
Scott, Roger Bradford	Ashfield	8 Sunset Avenue
Seely, Roy Frederick	Northampton	Northampton
Sekscienski, Edward	Southampton	Southampton
Sellers, Robert Low	Holyoke	Holyoke
Shanley, Donald Osborne	Attleboro	Commonwealth Circle Q-5
Simon, Michael Assad	Pittsfield	Commonwealth Circle Q-12
Simpson, Robert Bisbie	Boston	108 High Street
Sjolander, Charles David	Worcester	86 North Pleasant Street
Smith, Carlyle Alton	Springfield	Commonwealth Circle Q-5
Smith, Earle Hunter	North Grafton	616 Main Street
Smith, James Martin	Worcester	Commonwealth Circle R-5
Smith, Milton Henry	Haverhill	49 Fearing Street
Smith, Walter Alfred	North Quincy	Commonwealth Circle P-8
Smith, William Dean	Lexington	8 Sunset Avenue
Snow, Donald Augustine, Jr.	Haverhill	43 Fearing Street
Spencer, Albert Everett, Jr.	Weymouth	Commonwealth Circle R-13
Steenburn, Kenneth Joseph	Southbridge	635 Main Street
Steins, Walter Edward	Russell	North Amherst
Stibolt, Irving Gunnar	Springfield	Springfield
Sullivan, John Lawrence	Holyoke	Holyoke
Sullivan, Joseph Daniel	Belmont	Commonwealth Circle R-20
Suriner, Wayne Albert	Chester	1185 North Pleasant Street
Temple, James George	Boston	Strong Street
Thomas, Michael Joseph	Worcester	Commonwealth Circle P-9
Thompson, Roger Bradstreet	Beverly	Commonwealth Circle R-30
Thurston, Robert Charles	Natick	358 North Pleasant Street
Torcoletti, Elio Domenic	Leominster	Commonwealth Circle R-30
Towle, Warren Walker	Westminster	925 North Pleasant Street
Towse, Daniel Charles	Stoneham	Commonwealth Circle R-19
Tripp, Roy Earle	New Bedford	291 North Pleasant Street
Tryon, Richard Delmor	Monterey	Strong Street
Turner, Charles Edward	Amherst	140 South East Street
Turner, Melvin Harry	Boston	Commonwealth Circle T-24
Upham, Ray Danford, Jr.	Florence	Florence
Vaughan, Joseph Arthur	Lynn	367 North Pleasant Street
Vondal, Edward Alfred	North Chelmsford	Commonwealth Circle S-7
Walker, Joseph Aloysius, Jr.	North Dartmouth	45 Woodside Avenue
Wass, Loren Elmer	Leominster	Commonwealth Circle S-16
Watson, Edward	Cohasset	43 Fearing Street
Welch, Bernard John	Rutland	Commonwealth Circle R-18
Wentworth, Virginia Lillian	Springfield	Abigail Adams
White, Richard James	Lynn	Commonwealth Circle R-24
Wilbur, Ralph Edgar	Oakham	Commonwealth Circle P-9
Wilson, Paul Robert	Hyde Park	Commonwealth Circle P-4
Winski, Richard Stanley	Worcester	Commonwealth Circle P-3
Young, Lloyd Marvin	Holden	291 North Pleasant Street
Zalenski, Walter Donald	Shelburne Falls	8 Sunset Avenue
Ziemba, Charles Paul	South Barre	269 North Pleasant Street

SUMMARY OF STUDENT ENROLLMENT

Class	*Men*	*Women*	*Total*
1947	182	14	196
Specials	2	1	3
1948	211	7	218
	395	22	417

"God grants liberty to those who love it, who are always ready to guard and defend it."

"The cultivation of the earth is the most important labor of man. Unstable is the future of the country which has lost its taste for agriculture. If there is one lesson of history that is unmistakable, it is that national strength lies very near the soil."

—DANIEL WEBSTER.

Born in Salisbury, New Hampshire, 1782-1852. His father a farmer of Scottish stock. Graduated from Dartmouth College in 1801. In 1820 he aided greatly in revising the constitution of Massachusetts. Became one of the greatest orators in the nation. Lived and died in Marshfield, Massachusetts.

Bulletin

UNIVERSITY OF MASSACHUSETTS

COMMENCEMENT

1947

There is a certain valley

PRESIDENT'S LETTER

To Alumni and Friends of the University of Massachusetts:

This is the last time that I shall have the opportunity of inviting you to a Commencement and the first time that I can invite you to the Campus of the University of Massachusetts.

In these days when the sound of the bulldozer and the carpenter's hammer are the forerunners of a new era for our University, it is a pleasure to welcome you back to the Campus.

It should be particularly appropriate for Alumni to note the two new dormitories and other new buildings now in process of construction. The Alumni Building Corporation in providing new dormitories has made a great contribution to the developing program of the University. While satisfactory buildings are essential to a growing university, the teaching staff and the curriculum are even more important. Through the year the curriculum has been strengthened and broadened and the number of teachers and researchers increased so that we shall be able to take care of larger numbers of students and give more effective service to both agriculture and industry in the Commonwealth.

It will be a source of pride with you, as it is with us, that progress is being made and that a State University is in the building—a University that should extend the opportunities which we have always coveted for greater service to the young men and women of the Commonwealth.

Cordially yours,
Hugh P. Baker

PROGRAM

Friday, June 6, 1947

8:00 P. M. Informal Class Reunions.

9:00 P. M. Sophomore Senior Hop.

Saturday, June 7, Alumni Day

8:30 A. M. Roister Doister Breakfast, Draper Hall.

10:00 A. M. Annual Meeting, Associate Alumni, Memorial Hall.

11:00 A. M. Semi-Annual Meeting, Board of Trustees, President's Office.

12:00 M Alumni Luncheon and Speaking Program, Drill Hall.

2:30 P. M. Alumni Parade to Ball Game.

3:00 P. M. Varsity Baseball Game with Boston University, Alumni Field.
Following Game—Half Hour Concert on Chime.

4:00 P. M. Alumnae Tea, Stockbridge House.

5:00 P. M. Corner Stone Ceremony—Home Economics Building.

6:00 P. M. Fraternity and Class Reunions as arranged by organizations.

9:00 P. M. Roister Doister Play, "First Lady".

Sunday, June 8, Baccalaureate Sunday

9:00 A. M. Academics and Varsity Club Breakfast Meetings, Draper Hall.

12:00 M Fraternity and Class Reunions as arranged by organizations.

3:00 P. M. Baccalaureate Service, Bowker Auditorium.
Address by Rev. James D. Sullivan, S.J., Boston College.

5:00 P. M. President's Reception at President's House.

8:00 P. M. Concert on the College Chime.

8:00 P. M. Senior Class Night Exercises, Bowker Auditorium.
Followed by Alumni Reception to Seniors, Memorial Hall.

Monday, June 9, Class Day

9:45 A. M. Academic Procession from Memorial Hall.

10:00 A. M. Graduation Exercises.
Address by His Excellency Robert Fiske Bradford, A.B., LL.B.,
Governor of the Commonwealth.

ALUMNI REUNION PROGRAM

Saturday, June 7

8:30 A. M.	Roister Doister Breakfast, Draper Hall.
10:00 A. M.	Annual Meeting of the Associate Alumni, Auditorium, Memorial Hall.
12:00 M	Alumni Luncheon, Drill Hall.
2:30 P. M.	Alumni Parade, Memorial Hall to Alumni Field.
3:00 P. M.	Varsity Baseball Game—with Boston University, Alumni Field. Following the game there will be a half-hour concert on the college chime.
4:00 P. M.	Alumnae Tea, Stockbridge House.
6:00 P. M.	Class and fraternity reunions and suppers as arranged by the various organizations.
9:00 P. M.	Roister Doister Play—"First Lady," Bowker Auditorium.

CLASS REUNIONS

ALUMNI REGISTRATION HEADQUARTERS, MEMORIAL HALL

1887	Frederick H. Fowler, General Delivery, Fitchburg.
1892	Dr. Edward B. Holland, 74 No. Prospect Street, Amherst; Dr. Milton H. Williams, Sunderland.
1897	Dr. Charles A. Peters, 16 So. Sunset Avenue, Amherst.
1902	Howard Lawton Knight, 1364 Kalmia Road, Washington 12, D.C.; William R. Cole, 101 Fearing Street, Amherst.
1907	Clinton King, Esq., 31 Elm Street, Room 239, Springfield 3.
1912	Frank B. Hills, Investors Records Corp., 90 Broad Street, New York 4, New York.
1917	David H. Buttrick, chairman, reunion committee, 90 Gray Street, Arlington.
1922	Harry G. Lindquist, Flint Laboratory; Albert W. Smith, United Dairy System, Inc., Springfield; Clarence F. Clark, Sunderland.
1927	Ernest G. McVey, 118 Pelham Avenue, Hamden, Conn.; Albert F. Spelman, West Experiment Station.
1932	Edwina Lawrence, 37 South High Street, New Britain, Conn.; Mildred Twiss Briggs, 1157 North Pleasant Street, North Amherst.
1937	David P. Rossiter, Jr., 39 Rockland Avenue, Malden 48.
1942	Benjamin L. Hadley, Jr., Apt. F-2, Federal Circle, Amherst; Paul A. White, R.D. 3, Amherst; Robert C. McCutcheon, 9 Park Avenue, South Deerfield.
1944	Kirby Hayes, chairman, reunion committee, Theta Chi Fraternity, 496 North Pleasant Street, Amherst.
1946	Jack Blalock, Fernald Hall; Donald H. Parker, Pokeberry Ridge, Amherst.

Volume XXXIX June, 1947 Number 4

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2m-5-47-21083

ARM AND
OME DAYS

VOL. XXXIX
NUMBER 5
MAY, 1947

Stockbridge Hall—Information Headquarters

Farm and Home Days
ill also be held
ly 30-31, with a different
t of programs.

MASSACHUSETTS
STATE COLLEGE
June 17-18, 1947

PUBLISHED SIX TIMES A YEAR BY THE MASSACHUSETTS STATE COLLEGE. ENTERED AT THE POST OFFICE, AMHERST, MASS., AS SECOND CLASS MATTER.

General Information

Information Desk

An information desk will be located in Stockbridge Hall, where telephone messages and mail for visitors will be received from 9:00 a. m. to 8:00 p. m. Telephone number is Amherst 900.

Rooms

Rooms will be available in Thatcher and Lewis Halls at Information Desk after 4:00 p. m. on Monday, June 16. The price will be $1.50 per night. Linen will be furnished, with the exception of towels. Reservations should be made in advance by writing to the Secretary of the Extension Service, M. S. C., Amherst.

Rooms are available in private homes where one may be assured of comfortable quarters and courteous treatment. The average price is $2 per night.

Hotel rooms in Amherst average $2.50 to $4 per night.

A shady field is available north of North College dormitory for those who desire to camp. Water and lavatories are near-by.

Meals

The college cafeteria will serve meals (G. I. style) during Farm and Home Days as follows:

Morning	7:15 to 8:00
Noon	11:30 to 12:45
Evening	5:30 to 6:30

Light refreshments will be served at the College Store, North College, which will be open from 8:30 a. m. to 5:00 p. m.

Children's Nursery

Children's Nursery will be maintained at the Nursery School, rear of Stockbridge Hall, from 9:00 a.m. to 5:00 p.m. This will be available for pre-school children, age 2 to 5. There will be no charge.

TUESDAY, JUNE 17

Poultry

Goessmann Auditorium

Fred P. Jeffrey, Head of Poultry Department, M.S.C., presiding

9:30 A.M. Developments In Hot Water Brooding
Gay T. Klein, Extension Poultryman, M.S.C.

10:00 Poultry Disease Problems in Massachusetts
Henry Van Roekel, Research Professor, Poultry Disease Control, M.S.C.

10:45 My Experience with Confinement Rearing
Mark N. Witmer, Witmer's Poultry Farm, Dalmatia, Pennsylvania

11:30 Problems In Egg and Poultry Marketing
Howard Whelan, Manager, Brockton Cooperative Egg Auction Association, Avon, Mass.

12:00 Forum—Using Sheep on Poultry and Turkey Ranges
Arthur A. Cunningham, Hill Side Poultry Farm, Oxford, Mass.
Russel Sturtevant, Maple Tree Farm, Halifax, Mass.
Paul H. Arthur, South Berlin, Mass.
Harley A. Leland, Assistant State 4-H Club Leader, M.S.C.

12:30 P.M. Lunch Hour

1:30 Demonstrations at College Poultry Farm by M.S.C. Staff:
Killing and Dressing—John H. Vondell
Measuring Shank Lengths—a homemade device—George C. Feiker
Sight Sexing Rhode Island Reds—Courtney E. Walker
Poultry Nutrition—trials with the Connecticut broiler ration—Luther A. Banta
Confinement vs. Range Rearing—Thornton Stevens
2 Square feet per Layer—William C. Sanctuary
Meat Production Strains—White Plymouth Rocks, Chanteclers, New Hampshires and Rose Comb Rhode Island Reds—Fred P. Jeffrey

3:00 Tour of Paige Laboratory. Inspection of disease control facilities
Demonstrations:
Vaccination against Pox and Laryngotracheitis
Bronchitis Immunization

TUESDAY—Continued

Beekeeping

Bowditch Lodge

Frank R. Shaw, Assistant Professor of Beekeeping, M. S. C., presiding

9:20 A.M.	Introductory Remarks and Welcome Frank R. Shaw
9:30	Bees and Their Relation to Horticulture Wilbur H. Thies, Extension Horticulturist, M.S.C.
10:00	Honey, Its Production and Care E. J. Anderson, Apiculturist, Pennsylvania State College
11:00	The National Federation of Beekeepers Association George Rea, Field Representative, Reynoldsville, Penn.
11:30	Recent Observations on the Control of American Foulbrood J. Peter Johnson, Agricultural Experiment Station, New Haven, Conn.
12:00	Apiary Inspection and Regulations in Massachusetts Burton N. Gates, Chief Inspector, Massachusetts Department of Agriculture
12:30 P.M.	Lunch Hour
2:00	New Trends and Developments in Beekeeping George Rea
3:00	The Development of a 4-H Program in Beekeeping E. J. Anderson

Community Party Demonstration

DRILL HALL--7:30 P.M.

An opportunity for you to participate in a party demonstrating how local talent may be used in planning get-togethers for the entire community.

Do: The grand march—group singing—audience games—folk dances.

See and Hear: Homemakers' Chorus—4-H Band—dramatic skit—puppet show.

Recreation Leadership

2:00 - 4:30 P.M.

Leadership workshops on June 17 and 18, as offered below. Registration limited with preference given those registering in advance. Send name and address to Miss Ruth McIntire, M.S.C., Amherst by June 10, indicating first, second, and third choices. Register for same workshop both days. Persons enrolling for dramatics are asked to send in advance, special questions or problems they wish to have discussed.

DRAMATICS—Memorial Hall

Frank Prentice Rand, Head of Department of Languages and Literature, M.S.C.; Director of Roister Doisters (M.S.C. Dramatic Club)

James Robertson Jr., Assistant Professor, Landscape Architecture, M.S.C.; Scenic Artist and Stage Manager for Roister Doisters

FOLK AND SQUARE DANCING—Drill Hall

Lawrence V. Loy, Extension Specialist in Community Organization and Recreation, M.S.C.

MUSIC—Chapel Auditorium,

Augustus D. Zanzig, Director of Music, Brookline Public Schools; Lecturer on Music Education, Graduate School of Education, Harvard University

NATURE RECREATION—Fernald Hall, Room K

William G. Vinal, Professor of Nature Education, M.S.C.

SOCIAL GAMES AND PARTY PLANS—Farley 4-H Club House

Ruth McIntire, Extension Specialist in Recreation, M.S.C.

Community Party Demonstration—Drill Hall, 7:30 P.M.

Motion Pictures

Bowker Auditorium

12:15 - 1:15 p.m.

4-H Looks Forward
National 4-H Club Camp 1946

At Your Command
Services of United States Department of Agriculture

Four-Point Safety Home
Vital points in home safety.

Home Making

Bowker Auditorium

Helen S. Mitchell, Dean of School of Home Economics, presiding

Morning—See Food Technology Program

1:30 P.M. Community Singing
Augustus D. Zanzig, Director of Music, Brookline Public Schools

2:00 Fancy Bread Demonstration
Pauline Girard, Northeastern Representative, Wheat-Flour Institute
Assisted by Dorothy Davis, Instructor in Home Economics, M.S.C.

2:00 See Recreation Leadership Program

4:00 Social Hour and Refreshments—Homestead Terrace

7:30 P.M. Community Party—Drill Hall

EXHIBITS

Open 9:30-11:30 and 2:00-4:00

Home Economics—Stockbridge Hall, Rooms 113-114

Nursery School—Back of Stockbridge Hall
Home-made play equipment, children's books and records

Bookmobile—Parked back of Stockbridge Hall—Books for children and parents

Nutrition Experiments—Animal Feeding and Food Values—Nutrition Laboratory

Home Pasteurization—Flint Laboratory

Dairy Industry

Flint Laboratory — Room 204

Exhibits—9:30-11:30 a.m. and 2:00-4:00 p.m.

Pasteurization equipment for home use and many other interesting items of general interest to the farmer and homemaker.

10:30 A.M. Lecture Demonstration Showing Bacterial Count
Breed Smears and Plate Count: What They Are and What They Show
Harry G. Lindquist, Assistant Professor of Dairying, M. S. C.

TUESDAY—Continued

Food Technology

Bowker Auditorium

William R. Cole, Extension Food Technologist, M.S.C., presiding

10:00 A.M.	The Department Policy as to Home Canning Carl R. Fellers, Head of Department of Food Technology, M. S. C.
10:15	The Reasons for a Change in Policy William B. Esselen, Jr., Assistant Research Professor of Food Technology, M.S.C. Walter A. Maclinn, Chairman, Department of Food Technology, Rutgers University
11:30	Care and Use of Pressure Canners Arthur S. Levine, Assistant Professor of Food Technology, M.S.C.
12:00	Lunch Hour
2:00-4:00 P.M.	Tours of Food Technology Laboratory

WEDNESDAY, JUNE 18

Motion Pictures

Bowker Auditorium

12:15-1:15 P.M.

Problems of Housing
Simple and practical ways to modernize our homes.

You and Your Family
Family relationships

Sentinels of Milk
Health, cleanliness, quality and safety

Three to be Served
Business adventure of a group of young people

Recreation Leadership

2:00-4:30 P.M.

(Same as Tuesday's program with exception of Community Party. See page 5)

Home Making

Bowker Auditorium

Helen Curtis, Dean of Women, M.S.C., presiding

10:00 A.M.	Style Show Doris Dahlberg, representative of Simplicity Pattern Co., New York Assisted by Mildred Briggs, Assistant Professor of Home Economics, M.S.C., students and homemakers
11:30	Lunch Hour
1:30 P.M.	Community Singing
2:00	See Food Technology Program
2:00	See Recreation Leadership Program
4:00	Social Hour and Refreshments—Homestead Terrace

EXHIBITS

Open 9:30-11:30 and 2:00-4:00

Home Economics—Stockbridge Hall, Rooms 113-114

Nursery School—Back of Stockbridge Hall

Home-made play equipment, children's books and records

Bookmobile—Parked back of Stockbridge Hall—Books for children and parents

Nutrition Experiment—Animal Feeding and Food Values—Nutrition Laboratory

Home Pasteurization—Flint Laboratory

Forestry

Field Trip to College Forest on Mount Tobey
Robert P. Holdsworth, Head of Department of Forestry, M.S.C., leader

Meet in automobiles, French Hall at 1:15 P.M.

Trip will show forest stands which have had various kinds of forest treatment such as weeding, thinning, improvement cutting and pruning. Some will be in planted stands, and others in natural stands.

Group will return to French Hall about 4:00 P.M.

NOTE: In case of rain group will meet in French Hall, room 209 at 1:15 P.M., where an illustrated talk on forest activities on Mount Tobey will be discussed.

Strawberry Field Day

Fisher Laboratory (cold storage)

Ralph A. Van Meter, Dean, School of Horticulture, M.S.C., presiding

1:30 P.M. Fruit Testing Policy
Ralph A. Van Meter

Strawberry Plants and Planting Systems
Wilbur H. Thies, Extension Horticulturist, M.S.C.

Fertilizers, Rotations and Mulching
Ralph A. Van Meter

Pest Control on Nursery Plants
Arthur P. French, Professor of Pomology, M.S.C.

Results of Strawberry Variety Trials
Oliver C. Roberts, Assistant Professor of Pomology, M.S.C.

3:00 P.M. Inspection of Strawberry Plants

Variety Trials

Time of Planting

Systems of Runner Spacing

Methods of Treatment for Cyclamen Mite Control

Weed Sprays

Food Technology

Bowker Auditorium

Carl R. Fellers, Head, Department of Food Technology, M.S.C., presiding

2:00 P.M. What the Consumer Wants From the Locker Plant
Eleanor Bateman, Home Economist, New England Poultry and Egg Institute, Boston
Walter A. Maclinn, Chairman, Department of Food Technology, Rutgers University

2:30 What the Locker Plant has for the Consumer

Orville T. Wood, Pres., New England Locker Plant Conference, Clinton, Mass.

3:00 Recent Developments in Food Freezing
Frank A. Lee, New York Experiment Station, Geneva

NOTE: The New England Locker Plant Association is joining with this session and will continue its meeting on the evenings of the 18th and the 19th.

Goats

Goessmann Auditorium

George M. Kerr, President, Massachusetts Council of Milk Goat Breeders' Ass'n., Inc , presiding

10:00 A.M. Better Goats and How to Breed Them
Frank A. Hays, Research Professor, Poultry Husbandry, M. S. C.

11:00 A.M. Getting The Most From Surplus Milk
Julius H. Frandsen, Head of the Department of Dairy Industry, M.S.C.

12:00 Lunch Hour

1:00 P.M. A Breeder Speaks
Mrs. Carl Sandburg, Flat Rock, N. C.

2:00 P.M. Better Goats and How To Raise Them
Mary L. Farley, Sherborn, Mass.

3:00 P.M. Commercial Goat Dairying
John Kay, Kay's Goat Dairy, Whitman, Mass.

Dairy Industry

Flint Laboratory—Room 204

Exhibits—9:30-11:30 A.M. and 2:00-4:00 P.M.

Pasteurization Equipment for home use and many other interesting items of general interest to the farmer and homemaker.

2:30 P.M. You, Too, Can Pasteurize—lecture demonstration
Julius H. Frandsen, Head of Department of Dairy Industry, M.S.C.

Departments Open for Inspection

1. Chenoweth Laboratory—open 9:00 a.m. to 4:00 p.m.
   Home freezers will be in operation.

2. College Barns—open at all times.
   Six breeds of cattle, two of sheep, two of horses and one of swine are kept.

3. Durfee Plant House (east side of campus)—open 9:00 a.m. to 5:00 p.m.
   Contains tropical plants, such as pepper, bamboo, banana, ferns, and many flowering plants. Sections of house are devoted to succulents, cacti, and water plants.

4. Flint Laboratory—open 9:30 to 11:30 a.m. and 2:00 to 4:00 p.m.
   Pasteurization equipment for home use and many other items of general interest to the farmer and homemaker.

5. Goodell Library—open 8:30 a.m. to 5:00 p.m.
   For browsing and reading.
   Many daily newspapers and over 300 magazines are ready for use. Building houses over 70,000 books.

6. Home Economics, Stockbridge Hall, Rooms 113-114—open 9:30 to 11:30 a.m. and 2:00 to 4:00 p.m.
   Special exhibits of interest to all members of the family.

7. Nursery School—open 9:30 to 11:30 a.m. and 2:00 to 4:00 p.m.
   Demonstration and Exhibit of home-made play equipment, children's books and records.

8. Nutrition Laboratory (rear of Stockbridge Hall)—open 9:30 to 11:30 a.m. and 2:00 to 4:00 p.m.
   Animal feeding experiments and food values.

Massachusetts
State College
Amherst, Mass.

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THE UNIVERSITY OF MASSACHUSETTS

BULLETIN

Catalogue Number

UNDERGRADUATE SCHOOLS · 1948 - 49

Administration Building at Fort Devens

Memorial Hall at Amherst

Goodell Library at Amherst

Foyer of Goodell Library

Bulletin

UNIVERSITY OF MASSACHUSETTS

CATALOGUE OF THE UNIVERSITY

1948-1949

AMHERST, MASSACHUSETTS

VOLUME XL JANUARY, 1948 NUMBER 1

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FOREWORD

This Catalogue of the University presents announcements concerning courses, admission, etc., for the sessions of 1948-49.

The University reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue.

* * *

The University Catalogue for the sessions 1948-49 is part of the Eighty-fifth Annual Report of the Massachusetts State College and as such is part II of Public Document 31. (Sec. 8, Chapter 75, of the General Laws of Massachusetts.)

ACADEMIC CALENDAR

1948

AT AMHERST

June 11, Friday and June 12, Saturday. Entrance examinations.

June 14, Monday. Registration for Summer Session.

June 15, Tuesday, 8.00 A.M. Summer Session opens.

July 24, Saturday, 12.00 M. End of first six weeks of Summer Session.

July 26, Monday, 8.00 A.M. Summer Session opens for second half.

September 4, Saturday, 12.00 M. End of Summer Session.

September 20, Monday, 9.00 A.M. Registration of Freshman and Senior Students.

September 21, Tuesday, 9.00 A.M. Registration of Sophomore and Junior Students.

September 22, Wednesday, 2.00 P.M. Opening Convocation.

October 12, Tuesday. Columbus Day. No college exercises.

November 11, Thursday. Armistice Day. No college exercises.

November 24, Wednesday, 12.00 M. to November 29, Monday, 8.00. A.M. Thanksgiving Recess.

December 17, Friday, 12.00 M. to January 3, 1949, Monday, 8.00 A.M. Christmas Recess.

1949

January 3, Monday, 8.00 A.M. Classes Resume.

January 21, Friday, to January 29, Saturday. Final examinations.

January 29, Saturday. First Semester ends.

February 1, Tuesday, 9.00 A.M. Registration for Freshman and Senior Students.

February 2, Wednesday, 9.00 A.M. Registration for Sophomore and Junior Students.

February 3, Thursday, 8.00 A.M. Second Semester begins.

February 22, Tuesday. Washington's Birthday. No college exercises.

April 14, Thursday, 12.00 M. to April 20, Wednesday, 12.00 M. Spring Recess.

May 26, Thursday, to June 2, Thursday, 5.00 P.M. Final examinations.

June 3, Friday to June 6, Monday. Commencement.

ACADEMIC CALENDAR

1948

AT FORT DEVENS

June 9, Wednesday, 8.00 A.M. Summer Semester begins.

July 5, Monday. Independence Day. No college exercises.

September 1, Wednesday and September 2, Thursday. Entrance examinations.

September 4, Saturday. Summer Semester ends.

September 15, Wednesday, 9.00 A.M. Registration for new students begins.

September 20, Monday, 9.00 A.M. Registration of students other than Freshmen.

September 21, Tuesday, 2.30 P.M. Opening Convocation.

September 23, Thursday, 8.00 A.M. Classes begin.

October 12, Tuesday. Columbus Day. No college exercises.

November 11, Thursday. Armistice Day. No college exercises.

November 24, Wednesday, 12.00 to November 29, Monday, 8.00 A.M. Thanksgiving Recess.

December 18, Saturday, 12.00 M. to January 3, 1949, Monday, 8.00 A.M. Christmas Recess.

1949

January 3, Monday, 8.00 A.M. Classes resume.

January 12, Wednesday and January 13, Thursday. Entrance Examinations.

January 21, Friday, to January 29, Saturday. Final examinations.

January 27, Thursday, 9.00 A.M. Registration for new student begins.

F*ebruary 2, Wednesday, 8.00 A.M.* Second Semester begins.

February 22, Tuesday. Washington's Birthday. No college exercises.

April 14, Thursday, 12.00 M. to April 20, Wednesday, 8.00 A.M. Spring Recess.

May 23, Monday, to May 31, Tuesday. Final Examinations.

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Organization of January, 1947

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Richard Saltonstall, A.B. (Harvard University), Sherborn	1949
Ernest Hoftyzer, B.S. (Ohio State Universiay), Wellesley	1950
Alden Chase Brett, B.S. (University of Massachusetts), Belmont	1950
Mrs. Elizabeth Laura McNamara (Graduate Teacher's College), Cambridge	1951
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Mrs. Joseph Swan Leach, Walpole	1952
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John Martin Deely, A.B. (Williams College), Lee	1953
Clifford Chesley Hubbard, A.B., PH.D. (Brown University), A.M. (Harvard University), Mansfield	1953
Harry Dunlap Brown, B.S. (University of Massachusetts), Billerica	1954
John William Haigis, M.A. (Amherst College), Greenfield	1954
Joseph Warren Bartlett, A.B. Dartmouth College), LL.B. (Harvard University), Boston	1955
Philip Ferry Whitmore, B.S. (University of Massachusetts), Sunderland	1955

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Clarence Howard Parsons, b.s., m.s. (University of Massachusetts), *Professor of Dairy Industry, Extension.* Stockbridge Hall

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Ames Samuel Pierce, a.b. (Harvard University), a.m. (University of Michigan), *Assistant Professor of History.* Chapel

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Wallace Frank Powers, a.b., a.m., ph.d. (Clark University), *Professor of Physics and Head of Department.* Physics Laboratory

Walter Everett Prince, ph.b., a.m. (Brown University), *Professor of English.* Chapel

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George Frederick Pushee, *Assistant Professor of Agricultural Engineering.* Stockbridge Hall

Ernest James Radcliffe, m.b., m.d. (University of Toronto), *Professor of Hygiene and Head of Department of Student Health.* Physical Education Building

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* On Leave of Absence for Military Service.

FRANK PRENTICE RAND, A.B. (Williams College), A.M. (Amherst College), *Profesor of English and Chairman of Department.* Chapel

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JOHN EDWIN ROBERTS, B.S., M.S. (University of New Hampshire), *Assistant Professor of Chemistry.* Goessmann Laboratory

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J. HAROLD SMITH, B.S., M.A. (University of Utah), PH.D. (University of Wisconsin), *Professor of Chemistry.* Goessmann Laboratory

MARION ESTELLE SMITH, B.S. M.S. (University of Massachusetts), PH.D. (University of Illinois), *Technical Assistant in Entomology.* Fernald Hall

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JAY R. TRAVER, B.A., M.A., PH.D. (Cornell University), *Assistant Professor of Zoology.* Fernald Hall

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LEONARD RICHARD WILSON, PH.B., PH.M., PH.D. (University of Wisconsin), *Professor of Geology and Mineralogy, and Chairman of the Department.* Fernald Hall

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‡ Leave of Absence.

Norman Edward Wilson, e.e. (Cornell University), m.s. (Illionis Institute of Technology), *Associate Professor of Electrical Engineering.* Stockbridge Hall

Gilbert Llewellyn Woodside, b.a. (DePauw University), m.a., ph.d. (Harvard University), *Professor of Biology.* Fernald Hall

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Adele Blossom Bitcover, b.a. (New Jersey College for Women), *Teaching Fellow in Education.* Liberal Arts Annex

Lois Elizabeth Brow, b.s. (Rhode Island State College), *Teaching Fellow in Home Economics.* Nutrition Laboratory

James Jay Casler, Jr., b.s. (Missouri School of Mines). *Teaching Fellow in Agronomy.* Stockbridge Hall

Margaret Carol Cassidy, b.s. (Framingham State Teachers College), *Teaching Fellow in Home Economics.* Nutrition Laboratory

Robert Emmett Cleary, Jr., b.s. (University of Massachusetts), *Teaching Fellow in Chemistry.* Goessmann Laboratory

Suzanne Aline Lea Colson, Certificate de Licence D'Anglais (Faculte des Lettres, Universite de Paris), *Teaching Fellow in Romance Languages.* Liberal Arts Annex

Frank Herbert Dalton, b.s. (University of Massachusetts), *Teaching Fellow in Bacteriology.* Marshall Hall

Warren Spencer Dobson, b.s. (University of Massachusetts), *Teaching Fellow in Bacteriology.* Marshall Hall

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Susan Glidden Lake, b.s. (University of Massachusetts), *Teaching Fellow in Home Economics.* Nutrition Laboratory

Warren Litsky, a.b. (Clark University), *Teaching Fellow in Bacteriology.* Marshall Hall

Robert Scott Lloyd, a.b. (Tusculum College), *Teaching Fellow in Bacteriology.* Marshall Hall

Sylvia Randall MacCurdy, b.s. (University of Massachusetts), *Teaching Fellow in Home Economics.* Nutrition Laboratory

STANLEY EDWIN POLCHLOPEK, B.S. (University of Massachusetts), *Teaching fellow in Chemistry.* Goessmann Laboratory

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DONALD BERNARD SEELEY, B.S. (University of Connecticut), M.S. (University of Massachusetts), *Teaching Fellow in Dairy Industry.* Flint Laboratory

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RICHARD MERRILL SWENSON, B.S. (Brigham Young University), *Teaching Fellow in Agronomy.* Stockbridge Hall

GORDON PRESCOTT TROWBRIDGE, JR., B.S. (University of Massachusetts), *Teaching Fellow in Chemistry.* Goessman Laboratory

ELLEN KATHERINE VON HOFEN, A.B. (Smith College), *Teaching Fellow in Education* Liberal Arts Annex

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ROLAND C. BOECKLIN, Certificate de Diplome (Italian Colonial Institute of Florence), PH.D. (Yale University), *Associate Professor of German.*

BENNETT BOVARNICK, B.S. (California Institute of Technology), M.S. in M.E. (Harvard University), *Instructor in Physics.*

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CLEMENS DE BAILLOU, Certificat de Diplome (Universities of Vienna and Salzburg), *Assistant Professor of German.*

PARKER J. DEXTER, A.B. (Bates College), M.C.S. (Boston University), *Assistant Professor of Business Administration.*

MARION DWINELL, A.B. (Wellesley College), M.A. (Columbia University, Teachers' College), *Assistant Professor of Mathematics.*

E. E. ERICSON, B.A. (University of Montana), M.A. (University of Maryland), PH.D. (Johns Hopkins University), *Professor of English and Head of the Division of Humanities.*

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Joseph W. Fordyce, a.b. (Fairmont State College), m.a. (University of West Virginia), *Assistant Professor of English.*

Vincent Gagliarducci, b.s. (University of Massachusetts), m.a. (Columbia University), *Assistant Professor of English.*

George H. Genzmer, b.a (Williams College), m.a. (Columbia University), *Professor of English.*

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George Scott Gleason, b.a. (Cornell University), b.f.a. (Yale University), *Professor of Engineering Drawing.*

John M. Glowacki, b. mus. (New England Conservatory), *Assistant Professor of Music Activities.*

Solomon Gordon, b.s. (University of Massachusetts), m.ed. (Boston University), *Associate Professor of Chemistry.*

Enoch F. Greene, Jr., b.s. (Lafayette College), *Assistant Professor of Geology.*

Richardson L. Greene, b.a. (Yale University), *Assistant Professor, Supervisor of Records.*

Loyd Haberly, a.b. (Reed College), b.a., ma. (Oxford University), *Associate Professor of English.*

Paul Henry b.s. & m. ed. (Massachusetts State Teachers' College, Fitchburg), *Instructor in Machine Laboratory* .

Mrs. Nellie P. Hankins, b.a. (Colby College), m.a. (Yale University), *Assistant Professor of English.*

Arthur G. Hildreth, b.s. (Bowdoin College), m.s. (University of Maine), *Professor of Chemistry.*

John F. Hubbard, a.b. (Harvard University), ed.m. (Boston Teachers' College), *Assistant Professor of Mathematics.*

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John A. Jessup, a.b. (University of Rochester), *Associate Professor, Director of Activities.*

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Edward J. Kaylor, ph.b. (Providence College), *Instructor in English.*

Henry O. Kelley, b.s. in ed., ed.m. (Boston University), *Assistant Professor of Government.*

Phillip Kelly, b.s. in c.e. (Tufts College), *Instructor in Surveying.*

K. Scott Kinerson, b.s. (University of New Hampshire), *Instructor in Physics.*

William S. Knickerbocker, a.b. (Columbia College), m.a., ph.d. (Columbia University), *Professor of English.*

MRS. ROSA KUBIN, B.S. (Obergymnasium St. Poeltn), M.S., PH.D. (University of Vienna), *Assistant Professor of Chemistry.*

DANIEL W. LADD, B.E.E. (Renssalaer Polytechnic Institute), *Instructor in Mathematics.*

WALTER S. LAKE (Rhode Island School of Design), *Associate Professor of Engineering Drawing and Supervisor of Machine Laboratory.*

IRVING LIPOVSKY, B.S. (University of Massachusetts), M.S. (University of Illinois), *Associate Professor of Bacteriology.*

ANTHONY LIPP, A.B., M.A. (Boston College), *Assistant Professor of Mathematics.*

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JOHN B. LONGSTAFF, B.S. (United States Naval Academy), M.S. (Pennsylvania State College), *Assistant Professor of Mathematics.*

FREDERICK LOOK, B.S. (Virginia Military Institute), PH.B (Sheffield Scientific School), *Assistant Professor of Surveying.*

RALPH G. LOUNSBURY, PH.B. (Sheffield Scientific School), PH.D. (Yale University), *Professor of History and Head of the Division of Social Studies.*

I. LUDWIN, B.S. (University of Massachusetts), M.S. (University of Wisconsin), *Assistant Professor of Agriculture.*

NORMAN P. LYNCH, B.S. (Massachusetts State Teachers College, Salem), M.ED. (Boston University), *Instructor in Mathematics and Coordinator of Veterans Affairs.*

LEWIS I. MADDOCKS, A.B. (Marshall College), *Instructor in English.*

MARION T. MAGEE, B.S. (University of Chicago), *Instructor in Geology.*

THADDEUS MALISZEWSKI, B.S. (Boston College), *Instructor in Botany.*

ROBERT E. MARKARIAN, B.A. (Lafayette College), *Instructor in English.*

EDWARD MARZ, B.A. (University of Vienna), M.A. (Harvard University), *Instructor of Economics.*

HAMILTON A. MATHES, A.B. (Dartmouth College), A.M. (Harvard University), *Assistant Professor of French and Italian.*

ALFRED H. MATHIESON, JR., B.S. (East Stroudsburg State Teachers' College), M.A. (Columbia University), *Assistant Professor of Physics.*

RICHARD L. MCGLINCHEY, (Northeastern University), *Instructor in Surveying.*

JOHN F. MCKENZIE, A.B. (Harvard University), M.C.S. (Boston University), *Associate Professor of Accounting.*

RICHARD L. MONAHAN, PH.B. (Boston College), *Instructor in Surveying.*

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ROBERT J. MORRISSEY, B.S. (Buffalo State Teachers' College), M.S. (St. Bonaventure College), *Assistant Professor, Supervisor of Guidance.*

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Boris Erich Nelson, m.a. (Conservatory of Music, Heidelberg), ph.d. (University of Heidelberg), litt.d. (University of Goettingen), litt.d. (University of Heidelberg), *Associate Professor of Music and Fine Arts.*

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Otto Nieuwejaar, b.sc., m.a. (University of Toronto), ph.d. (Yale University), *Professor of Economics.*

George J. Oberlander, b.s. (Tufts College), *Instructor in Chemistry.*

George H. R. O'Donnell, b.a. (University of Idaho), m.a. (University of Washington), ph.d. (Yale University), *Professor of Industrial Engineering and Head of the Division of Science.*

Frank Onischuk, b.s (Massachusetts State Teachers' College, Fitchburg), *Instructor in Machine Laboratory.*

Ralph W. O'Rourke, b.s.e. (Massachusetts State Teachers' College, Fitchburg), m.a. (University of Massachusetts), *Associate Professor of Engineering Drawing.*

William A. O'Shea, a.b. (Harvard University), ed.m. (Boston Teachers' College), *Associate Professor of Mathematics.*

Theodore H. Packard, b.s. (Tufts College), m.f.a. (Yale University), *Assistant Professor of English.*

Ralph F. Palumbo, b.s. (University of Massachusetts, *Instructor in Biology.*

Francis Pascal, a.b. (University of California), *Assistant Professor of Spanish.*

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William M. Rau, b.s. (Wesleyan University), a.m. (Harvard University), *Associate Professor of Biology.*

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Ernest Rhodes, b.a. (West Virginia University), *Assistant Professor, Supervisor of Dramatic Activities.*

Francis J. Riel, b.s., m.s. (University of Massachusetts), *Assistant Professor of Physical Education.*

Julian Roberts, a.b. (Columbia College), m.a. (Columbia University), *Instructor in English.*

F. Leslie Rose, *Instructor in Machine Laboratory.*

Abraham Rosenfeld, b.s., m.s. (Massachusetts Institute of Technology), *Assistant Professor of Mathematics.*

Walter E. Ross, Jr. (Harvard College), *Instructor in Engineering Drawing.*

Alvan S. Ryan, b.s. (University of Massachusetts), a.m. (Harvard University), ph.d. (University of Iowa), *Professor of English.*

HENRY SCHWARTZ, A.B. (University of California), M.ED. (Massachusetts State Teachers' College, North Adams), *Assistant Professor of Physics.*

CHARLES J. SCULLY, A.B. (Villanova University), M.A. (Boston University), *Assistant Professor of Mathematics.*

FRANCIS B. SHEPARDSON, B.A. (William College), *Assistant Professor of Mathematics.*

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WALTER W. SMITH, B.E.E. (Northeastern University), *Assistant Professor of Mathematics.*

C. THEODORE SOTTERY, A.B. (Clark University), A.M., PH.D. (Columbia University), *Professor of Chemistry.*

VICTOR R. STAKNIS, B.S. (Massachusetts Institute of Technology), B.S. in ED. (Massachusetts State Teachers' College, Bridgewater), *Instructor in Mathematics.*

EDMUND J. STAWIECKI, B.S. (University of Massachusetts), M.A. (University of Iowa), *Instructor in German.*

WILLIAM J. STEWART, JR., B.S. (Notre Dame University), M.ED. (Boston University), *Assistant Professor of Physical Education.*

R. VICTOR STOUT, B.S. (Boston University), *Professor of Physical Education and Head of the Division of Physical Education.*

JACK STURTEVANT, B.V.A. (University of Massachusetts), LL.B. (Boston College), M.ED. (Boston University), *Associate Professor of Government.*

ANDREW H. P. SWIFT, B.A. (Bard College), *Instructor in Chemistry.*

EDMUND C. TALBOT, PH.B. (Boston College), *Assistant Professor of Chemistry.*

ELMER SYRENE, *Instructor in Machine Laboratory.*

EDWARD TRIPP, B.S. (University of Massachusetts), M.ED. (Boston University), *Instructor in Psychology.*

ROBERT B. WAIT, B.S. (Bowdoin College), A.M. (Harvard University), *Assistant Professor of Biology.*

WILLIAM J. WALL, JR., B.S. (University of Massachusetts), *Instructor in Biology.*

JOHN X. WALSH, B.S. (United States Military Academy), *Assistant Professor of Mathematics.*

JOSEPH J. WALSH, A.B. (St. Anselm's College), *Assistant Professor of English.*

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Chairman Lanphear*, Emery, Fessenden, Gore*, Haynes, H. C. Parker, D. E. Ross*, Sanctuary.

MUSIC

Chairman Alviani, Dickinson, Ellert, Fraker, Goding, McCartney, McIntire, van Wieren.

* Alumni Representative.

RECREATION CONFERENCE COMMITTEE

Chairman VINAL, L. BRIGGS, CASSIDY, DICKINSON, V. HUBBARD, LOY, MCINTIRE, MUSGRAVE, O. C. ROBERTS, J. ROGERS, C. L. THAYER, TRIPPENSEE, VONDELL, TEAHAN.

STOCKBRIDGE SCHOOL ADVISORY COUNCIL

Chairman VERBECK, BANTA, BARRETT, BLUNDELL, DICKINSON, R. C. FOLEY, GRAYSON, HOLDSWORTH, S. C. HUBBARD, KRANZ, LINDQUIST, MARKUSON, MATHIEU, O. C. ROBERTS, SNYDER, C. H. THAYER.

STUDENT AID

Chairman GRAYSON, HAWLEY, LANPHEAR.

STUDENT LIFE

Chairman HELMING, ALDERMAN, BARRETT, CURTIS, R. C. FOLEY, GARVEY, KEYSER, LANPHEAR, J. H. SMITH, TOTMAN, VARLEY.

VISUAL EDUCATION

Chairman BARRETT, L. BRIGGS, GODING, LANPHEAR, PURVIS, RHODES, VONDELL.

STANDING COMMITTEES
OF THE FACULTY
1948-1949
FORT DEVENS

ATHLETICS

Francis B. Shepardson, William B. Bergen, Ralph O'Rourke.

AUDIO-VISUAL

Boris E. Nelson, Walter W. Smith, Lewis Maddocks.

CURRICULUM

Robert E. Bacon, Herbert G. Coar, Otto Nieuwejaar.

LIBRARY

William S. Knickerbocker, Franklin T. Nichols, William M. Rau.

ORGANIZATION

George Genzmer, William O'Shea, Robert J. Morrissey, John Glowacki, Francis Riel.

PUBLICATIONS

Loyd Haberly, Ernest Rhodes, John H. Flynn, Boris E. Nelson.

SCHOLARSHIP

Francis B. Shepardson, Paul J. Cavanaugh, Edward T. P. Watson.

STUDENT HOUSING

Fritz Redlich, Hamilton A. Mathes, Marian Dwinell, William A. Bode.

CAMPUS

J. Robert Davis, John F. Hubbard, Warren D. Burrington.

AD-DIV-FAC REPRESENTATIVES

Leonard Arnaud, Theodore Sottery, Jack Sturtevant.

PUBLICITY

John F. Flynn, John F. McKenzie, Ernest Rhodes.

ACTIVITIES

Roland C. Barnfather, Donald F. Fenn, Arthur Chabotan.

STUDENT SENATE

Robert B. Wait, Anthony Zaitz.

MARSHAL

Roland Boecklin.

FACULTY JUDICIARY REPRESENTATIVE TO STUDENT SENATE

Jack Sturtevant.

SECRETARY

Sidney Kaplan.

UNIVERSITY OF MASSACHUSETTS

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The University of Massachusetts is the State Institution of the Commonwealth founded under the provisions of the Morrill Land Grant Act of Congress of 1862. This Act provided in each state for "the endowment for and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts in such manner as the legislatures of the states may respectively prescribe in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Massachusetts accepted the provisions of the Morrill Act in 1863 by founding a new college at Amherst to be known as "Massachusetts Agricultural College" and Chapter 75 of the General Laws of the Commonwealth states that "the leading object of the College shall be to teach subjects relating to agriculture and the mechanic arts so as to promote liberal and practical education. Its curriculum may include other scientific and classical studies and shall include military tactics."

The Trustees of Massachusetts Agricultural College were incorporated in 1863 and officers were appointed in that year. It was not until October 2, 1867, however, that the College was formally opened to students. At that time there were four teachers on the faculty and four wooden buildings on the campus. The enrollment steadily increased during the first term, however, and by December, 1867, forty-seven had been admitted. From this modest beginning the College has grown steadily both in number of students and scope of its work. In April, 1931, the name of the institution was changed by legislative enactment to Massachusetts State College. In 1939 the Trustees voted to award the A.B. degree as well as the B.S. which previously had been the undergraduates degree of the College. In May 1947 the College became the University of Massachusetts.

FUNCTIONS OF THE UNIVERSITY

The University of Massachusetts now serves the Commonwealth in the three important fields of resident instruction, research, and extension. Since all three services are organized on the campus, students have the advantages that come through contact with those carrying education to the state at large and conducting original investigation as well as those engaged in formal instruction.

RESIDENT INSTRUCTION

DEGREE COURSES

The Undergraduate College. The University offers four year undergraduate instruction leading to the following degrees, Bachelor of Science, Bachelor of Arts, Bachelor of Science in Agricultural, Civil, Electrical and Mechanical Engineering, Bachelor of Business Administration and Bachelor of Vocational Agriculture.

This instruction is assigned to the Schools of Agriculture, Engineering, Home Economics, Horticulture, Liberal Arts and Science, and to the Division of Physical Education. The aim of the four year course is to give as high a degree of proficiency in some particular branch of learning as is possible without sacrificing the breadth, knowledge, and training which should characterize a well-rounded college education.

The degree of Bachelor of Science is conferred upon those candidates who complete the curriculum requirements of the first two years, the specialization requirements of the Junior and Senior years, plus additional credits to bring the total Junior-Senior credits to sixty in the following schools: Agriculture, Horticulture, Home Economics, Science and in the Division of Physical Education for men. This degree will also be granted to students majoring in Psychology or Education who elect fifteen credits in the School of Science in the Junior and Senior years.

The degree of Bachelor of Arts is awarded to all candidates in the School of Liberal Arts who complete the School requirements of the Freshman and Sophomore years, the departmental specialization requirements of the Junior and Senior years and enough additional credits to bring the two year total to sixty. Students in the School of Science may qualify for the A.B. degree by satisfying the requirements of the School for the Freshman and Sophomore years, completing the departmental requirements in the Junior and Senior years, and supplementing these with a second year of foreign language and eighteen additional credits selected from History, Languages and Literature, Philosophy, Music and Art.

All graduates from the School of Engineering will receive the appropriate degrees of Bachelor of Science in Civil Engineering, Electrical Engineering, Mechanical Engineering and Agricultural Engineering.

Graduates majoring in Light Building Construction will receive the Bachelor of Science degree.

Graduates who major in Business Administration will receive the degree Bachelor of Business Administration.

Special arrangement is made for some graduates of county agricultural schools and of agricultural departments of certain high schools to complete the college course with majors in agriculture or horticulture. Upon the completion of their course they will be granted a Bachelor of Vocational Agriculture degree.

THE GRADUATE SCHOOL. Graduate courses leading to advanced degrees are available in the Graduate School. Majors leading to the Master of Science or Doctor of Philosophy degree may be taken in the following fields: Agronomy, Bacteriology, Botany, Chemistry, Economics, Entomology, and Food Technology.

In addition, the following departments offer major work leading to a Master of Science degree only: Agricultural Economics and Farm Management, Animal Husbandry, Dairy Industry, Education, Floriculture, Home Economics, Olericulture, Physical Education (Men), Pomology, Poultry Science, Psychology, and Zoology.

The degree of Master of Landscape Architecture is granted to students completing the two years' graduate work offered by the Department of Landscape Architecture; while students taking the equivalent of one year's graduate work in that major may be granted the degree of Bachelor of Landscape Architecture.

Several other departments in the institution, while not regularly organized for major work in the Graduate School, do, nevertheless, offer courses which may be selected for minor credit. These are: English, French, Forestry, Geology, German, Mathematics, Philosophy, Physics, Physiology, and Veterinary Science.

The general requirements of the Graduate School regarding entrance, residence credits, tuition, fees, etc., together with specific information concerning details of interest to prospective students are set down in a separate bulletin which may be obtained upon request from the Director of the Graduate School.

THE SUMMER SCHOOL. A twelve weeks' Summer Session is available for those desiring to accelerate their program. This Summer Session is planned to serve the needs of (1) all students enrolled as candidates for a degree at any college, (2) those desiring refresher or professional improvement courses, (3) graduate students desirous of meeting specific requirements in certain fields, (4) any adult person who finds courses suited to his preparation and needs, and (5) any men discharged from the Armed Forces who desire to resume their college program or take special courses for specific rehabilitation objectives.

NON-DEGREE SHORT COURSES

The University, through its Short Course division, offers prospective farmers, and other persons interested in related agricultural activities, a complete program of short courses varying in length from one week to two years, even though they may lack adequate preparation for degree courses. Both men and women may enroll.

THE STOCKBRIDGE SCHOOL OF AGRICULTURE. This School was organized at the University in 1918 under the name of "The Two Year Course in Practical Agriculture," for the purpose of meeting the demand for *shorter courses* in agriculture which might be taken by students who could not satisfy college entrance requirements or who, for one reason or another, were unable to take the college course. In 1928 the School was given its present name in honor of Levi Stockbridge, first professor of agriculture in the University and its fifth president.

This program trains men and women primarily for the practice of farming or associated agricultural industries. Graduation from the School does not fulfill the requirements for entrance into the degree course nor are credits earned during the course transferable regularly toward credit for a degree.

As the course is now organized, students may choose any one of eleven specialized vocations including animal husbandry or dairy farming, dairy manufactures or milk plant operation, poultry farming, arboriculture (shade trees), fine turf maintenance for golf courses, commercial floriculture, food management for clubs, hotels, and restaurants, fruit growing, ornamental horticulture or landscape gardening, vegetable growing, and forestry or commercial lumbering, the latter a one-year course only. Specialization in a vocation does not prevent students from securing a general working knowledge of other subjects. The School is not intended for students enrolled in a high school; such students should complete their high school course before seeking admission.

Limited enrollments in each major course make imperative early filing of application.

For a complete catalogue of the Stockbridge School and also information in regard to other short courses, write the Director of Short Courses, University of Massachusetts, Amherst, Massachusetts.

This service is one of the functions of the University of Massachusetts.

RESEARCH AND REGULATORY SERVICES

Soon after it became evident that Agriculture deserved a place in the curriculum of public education, educators, responsible for the organization of courses, discovered that there was a dearth of useful or practical information on subjects related to Agriculture and that few of the practices then in operation had adequate scientific foundation to make them adaptable for classroom instruction. The realization of this inadequacy and an attempt to overcome it was perhaps more responsible than any other interest for the development of research in Agriculture and the consequent establishment of experiment stations in all of the states.

These agencies, during more than sixty years of research, have accumulated a fund of knowledge that has developed Agriculture to a point where it is now recognized as more of a science than an art. Since these early beginnings, the subject has become sufficiently teachable to have a pronounced effect on the development of the entire industry. The resulting improvements in the efficiency and effectiveness of agricultural practices benefit the entire consuming public through the possibilities for a higher standard of living, in so far as that standard is influenced by subsistence requirements. This has led to demands for the expansion of research services until, at present, experiment stations are receiving federal support under four congressional acts and, in most states, are also liberally supported by legislative appropriations.

This service is one of the functions of the University of Massachusetts. It has expanded until it now deals with problems in the following field of specialization: Agricultural Economics and Farm Management, Agronomy, Animal Husbandry, Bacteriology, Botany, Chemistry, Dairy Industry, Economics, Engineering, Entomology, Horticulture, Floriculture, Food Technology, Nutrition, Olericulture, Pomology, Poultry Science, and Veterinary Science.

While most of the research activities are undertaken at the main station at Amherst, special service is offered through two substations, one at Waltham and the other at East Wareham, where particular phases of Agriculture are stressed. The research at Waltham is devoted largely to the problems of Horticulture as applied to Olericulture, Floriculture, and Nurseryculture while, at East Wareham, attempts are in progress to solve the problems of the cranberry and blueberry growers.

The administration of certain regulatory services, as these pertain to the sale of feeds, fertilizers, and seeds and to the use of dairy glassware, is also assigned to the Experiment Station which is equipped with the necessary laboratory facilities and personnel for that purpose.

EXTENSION SERVICE

The Massachusetts Extension Service is a cooperative teaching effort between the United States Department of Agriculture, the University of Massachusetts and the several counties of the State. It is done through unified teaching programs carried to all parts of Massachusetts. It assists the people of the farm, the home, and the rural communities to improve agriculture, homemaking, and rural life. Extension educational teaching plans are made in council with the people. They determine their problems and help to suggest methods and practices for their solution.

This cooperative effort was brought about under the Federal Smith-Lever Law passed by Congress on May 8, 1914. Since that time, the service has grown to a staff of over 100 state and county workers who conduct an educational program in all phases of agriculture and homemaking among the adults and young people (4-H club work) of the State. All types of methods, including subject-matter meetings, demonstrations, farm and home visits, publications, visual aids, and radio, are used in carrying out this educational program directly in the farm and rural areas of the State. During the war emergency, the Extension Service extended its home food production and preservation program to the urban and city areas.

THE UNIVERSITY CAMPUS—AMHERST

The University of Massachusetts is located at Amherst, a town of about 7,000, overlooking one of the most picturesque sections of the Connecticut River Valley. This valley is noted both for its scenic beauty and its educational institutions. The setting for the University, therefore, is ideal. The surrounding country is a rich agricultural region providing an excellent outdoor laboratory for the work in Agriculture and Horticulture as well as for the Biological Sciences and Geology. Those interested in other Sciences and Liberal Arts study under equally favorable conditions both because of the facilities at the University and its location in this educational area of the valley.

Amherst is eighty-eight miles from Boston and may be reached by bus connections from Northampton, Greenfield, and Springfield. The campus consists of a tract of approximately seven hundred acres, lying about a mile north of the village center. In addition, the University owns another area of seven hundred and fifty-five acres six miles north of the campus on Mount Toby. This is used as a demonstration forest.

The University also operates a horticultural field station at Waltham and a cranberry field station at East Wareham.

BUILDINGS AND EQUIPMENT

The campus is laid out in the form of an oval attractively set off by the College Pond in the center. Around this oval are grouped the main buildings of the University. Those using the attached map of the campus are advised to start at South College, the Administration Building, and proceed in the order indicated below.

South College.—Here are located the administrative offices including those of the President, Dean, Registrar, Treasurer, Secretary, Director of the Extension Service, of Short Courses and the Stockbridge School of Agriculture, Placement Service, and the Dean of Women. Erected 1885.

NORTH COLLEGE.—Dormitory, the College Store, offices and classrooms of the Department of Economics. Erected 1868.

Farley 4-H Club Building and Bowditch Lodge.—These are the headquarters for 4-H Club Activities. Erected in 1933 and 1936 by funds contributed by 4-H Club members and interested friends and organizations. The former was named to honor George L. Farley for twenty-five years State Leader of Country Club Agents; the latter for Nathaniel Bowditch, trustee of the College from 1896-1945.

POWER PLANT.—General Maintenance.

LIBERAL ARTS BUILDING.—Classrooms, laboratories and offices for Foreign Language, Psychology and Education. Erected 1947.

GRINNELL ARENA AND ABATTOIR.—Erected in 1910 primarily for livestock judging. An abattoir was constructed in 1930 as an addition to the original building. Named in honor of James S. Grinnell, for twenty-two years a trustee of the College.

FLINT LABORATORY.—Laboratories and classrooms for Dairy Industry. Erected in 1911 and named for Charles L. Flint, fourth President of the College.

STOCKBRIDGE HALL.—Departments of Agricultural Economics and Farm Management, Agronomy, Animal Husbandry, Engineering and Poultry Husbandry. Erected in 1914 and named for Levi Stockbridge, first Professor of Agriculture and a former President of the College. Bowker Auditorium, the main auditorium of the College, is located here. It is named for William H. Bowker, a member of the first graduating class, a trustee of the College, and one of the pioneers in the fertilizer industry.

CHENOWETH LABORATORY.—Classrooms and laboratories including a large Commercial Canning Practices Laboratory for the Department of Food Technology. Erected 1929 and named in honor of Walter W. Chenoweth, pioneer in the field of Food Technology and first Head of the Department.

NUTRITION LABORATORY.—A laboratory for the study of small animals and chickens in connection with investigations into human, animal, and poultry nutrition.

ENGINEERING ANNEX.—Laboratories, classrooms and offices for Engineering and Chemistry. Erected 1947.

ENGINEERING SHOP.—Erected 1916.

DRAPER HALL.—College Dining Hall. Erected 1903 with an addition in 1912. Named in honor of James Draper, for twenty years a trustee of the College. Annex erected 1947.

GOESSMANN LABORATORY.—Contains eight large laboratories, an auditorium, chemical library, and lecture rooms. The east wing of the third floor is used by the Experiment Station chemists. The remainder of the building is for resident instruction in Chemistry. Erected in 1924 and named in honor of Charles A. Goessmann, first Professor of Chemistry at the College.

WEST EXPERIMENT STATION.—The State Control Service is centralized here. Fertilizers, seeds, and feeds are analyzed or inspected in accordance with the State law. Erected 1886.

Butterfield Dormitory at Amherst

Lewis and Thatcher Dormitories for Women at Amherst

WORCESTER HALL, DEVENS

PHYSICAL EDUCATION BUILDING, AMHERST

EXPERIMENT STATION ADMINISTRATION.—Here are located the offices of the Director of the Experiment Station and Graduate School and other administrative officials.

ABIGAIL ADAMS HOUSE.—Women's dormitory accommodating one hundred students. Erected in 1919 and named for Abigail Adams, wife of John Adams, second President of the United States.

THE HOMESTEAD.—Girls majoring in Home Economics receive their Home Management practice here. This is a fine old colonial homestead newly equipped with all the modern conveniences of the home.

LEWIS HALL.—Women's dormitory accommodating one hundred and fifty students. A self-liquidating dormitory erected under the sponsorship of the Associate Alumni in 1940 and named in honor of Edward M. Lewis, Dean of the College 1914-25 and President 1925-27.

THATCHER HALL.—Women's dormitory with facilities for one hundred and fifty students. Erected in 1935 and named in honor of Roscoe W. Thatcher, President of the College 1927-32.

COLLEGE INFIRMARY.—A group of three buildings, one for bed patients, one for out patients and a third for contagious cases.

MARSHALL HALL.—Erected in 1915 and named for Dr. Charles Marshall, a former Professor of Bacteriology and Director of the Graduate School. Here are the laboratories and classrooms used by the Departments of Bacteriology and Physiology. Annex erected 1947.

SKINNER HALL.—Laboratories, class rooms and offices for the School of Home Economics. Erected in 1947 and named in honor of Edna L. Skinner, first Dean of the School of Home Economics.

PHYSICS LABORATORY.—Classrooms and laboratories for Physics. Erected 1867.

FISHER LABORATORY.—Erected in 1910 and named for Jabez Fisher, one of the foremost early horticulturists of the State. Laboratories for Pomology. Included are a quick freezing room, six refrigerator rooms, two rooms for the storage of frozen products, two classrooms, and three packing rooms.

WILD LIFE LABORATORY.—Laboratories for the Department of Wild Life Management.

WILDER HALL.—Here are the classrooms, drafting rooms, and offices of the Department of Landscape Architecture. Erected in 1905 and named for Marshall P. Wilder, a pioneer in the movement for agricultural education in Massachusetts, and one of the first trustees of the College.

FRENCH HALL.—French Hall houses the Departments of Floriculture, Forestry, Pomology, and Olericulture. In the rear of the building is the new Durfee range of greenhouses devoted to the growing of carnations, roses, chrysanthemums, etc. One house is maintained as a conservatory and contains a collection of plants used primarily for decorative purposes. The old Durfee range just north of French includes a collection of tropical and semi-tropical plants of botanical and horticultural importance.

STOCKBRIDGE HOUSE.—Faculty Club House.

CLARK HALL.—Offices, lecture rooms, laboratories, and greenhouses of the Department of Botany are located here. The herbarium contains about twenty thousand sheets of seed plants and ferns, twelve hundred sheets of liverworts and mosses, and a collection of twenty-five thousand specimens of fungi. The building was erected in 1906 and named in honor of William S. Clark, President of the College and Professor of Botany from 1867 to 1879.

FERNALD HALL.—Erected in 1909 and named in honor of Professor Charles H. Fernald who served the College from 1886 to 1909, built up a strong Department of Zoology, created the Department of Entomology, and acted as Director of the Graduate School. Fernald Hall houses the Department of Entomology, Zoology, and Geology. The offices and laboratories of the Western Sanitary District, Massachusetts Department of Public Health are also located here. The Entomology collection includes over 160,000 insects. There are also Geological and Zoological museums.

MATHEMATICS BUILDING.—Classrooms and offices of the Mathematics Department.

BUTTERFIELD HALL.—Freshman men's dormitory including Dining Hall. Accommodates one hundred and fifty students. A self-liquidating dormitory erected in 1941 under the sponsorship of the Associate Alumni. Named in honor of Kenyon L. Butterfield, President of the College 1906-1923.

CHADBOURNE HALL.—Men's dormitory for one hundred and fifty students. A self-liquidating dormitory erected in 1946 under the sponsorship of the Associate Alumni. Named in honor of Paul Ansel Chadbourne, President 1866-67 and 1882-83.

GREENOUGH HALL.—Men's dormitory and Dining Hall. Houses one hundred and forty-eight students. A self-liquidating dormitory erected in 1946 under the sponsorship of the Associate Alumni. Named in honor of James Carruthers Greenough, President from 1883-86.

PAIGE LABORATORY.—The work in Veterinary Science is located here. In addition to class, lecture, and laboratory rooms, there are laboratories for the State Control and Research Work on animal diseases. The museum contains a growing number of anatomical and pathological specimens, most of which are used for teaching purposes. Erected in 1898 and named for James B. Paige, Professor of Veterinary Science from 1891-1922.

CURRY S. HICKS PHYSICAL EDUCATION BUILDING.—Erected in 1931 from funds contributed by Alumni and friends of the College plus an appropriation by the State Legislature. Contains a large swimming pool, an exercise hall, basketball floor, and locker rooms. The Health Office and x-ray room are also located here. Named for Curry S. Hicks, Professor of Physical Education since 1911.

ALUMNI FIELD.—So called because both funds and labor for its construction were contributed by alumni and students. Included are a baseball diamond, football and soccer fields, and a cinder track. Ten tennis courts are adjacent to the Physical Education Building.

ATHLETIC FIELD FOR WOMEN.—A large field west of the Physical Educational Building provides space for Archery, Softball, Field Hockey, and other women's activities.

COLLEGE ARMORY.—In addition to the offices of the Department of Military Science are the offices, locker and dressing rooms, and exercise hall for the Department of Physical Education for Women.

MEMORIAL HALL.—Erected in 1921 by Alumni and friends in memory of those men of the College who died in World War I. Included is a beautiful Memorial Room. This building is a social center of student life. Alumni headquarters are here as well as the offices of student organizations including the Senate, Collegian, and Index. In the basement are bowling alleys and pool tables.

OLD CHAPEL.—Erected in 1885. Auditorium, seminar room, classrooms, and offices for English, History, and Sociology.

GOODELL LIBRARY.—Goodell Library is named in honor of Henry Hill Goodell who served the College from 1867-1905. He was President from 1886 to 1905 and because of his deep enthusiasm for books also acted as Librarian of the College.

Goodell Library is a virtually fireproof building erected in 1935. Its plan is unique in that the book-stacks are open freely for inspection and borrowing.

The main floor includes a large reading room, a reference room, delivery desk, cataloging and administrative offices. On the second floor is another large reading room, commonly used for reserve book reading. There are also studies for faculty and students and the University of Massachusetts Memorabilia room.

Besides Goodell Library there are fifty-two departmental libraries ranging from small collections to sizable separate libraries with reading rooms and valuable collections of reference and text books.

The complete library system contains 136,000 volumes and is growing at the rate of over 4,000 volumes a year. The library regularly receives over 600 periodicals, and also the serial publications of learned societies. It is also a depository for government documents of the United States Department of Agriculture and the various State Experiment Stations.

UNIVERSITY OF MASSACHUSETTS AT FORT DEVENS

The University of Massachusetts at Fort Devens provides instruction of collegiate grade to Massachusetts veterans. This addition to the University of Massachusetts was established by legislative action on June 14, 1946.

The act provided that the Board of Trustees of Massachusetts State College be increased by the "addition of nine trustees to be appointed by the Governor, with the advice and consent of the Council, from the presidents of colleges and universities within the Commonwealth."

The act further provided that the augmented Board of Trustees shall serve for a term of five years, and "shall have responsibility only for the establishment, operation, and termination of a branch of the University of Massachusetts for the purpose of providing instruction of collegiate grade to veterans of World War II who resided in this Commonwealth at the time of their entry into the service."

The University operates on an accelerated three-semester basis and accepts students at the opening of each semester in September, February, and June. It is open to all male veterans of Massachusetts who qualify academically and who are eligible under the G. I. Bill. Freshmen, or students with advanced credit not above the Sophomore year, may enter after proper application and acceptance. All unmarried students are required to live on the campus. Accommodations are available for married students with or without families.

Situated in a setting of old New England villages in an area of great scenic beauty, the University of Massachusetts at Fort Devens is less than two miles from Ayer, Massachusetts, a junction for highway, train, and bus connections to all major cities in the Commonwealth and New England. The cities of Boston, Worcester, Lowell, and Fitchburg are but a short drive from the campus.

CAMPUS.—Located within the reservation of a now inactive army post rich in New England history, the campus covers four square miles of rolling countryside. With its ivy-covered brick buildings, spacious, landscaped grounds and country atmosphere, the campus resembles that of a long-established institution.

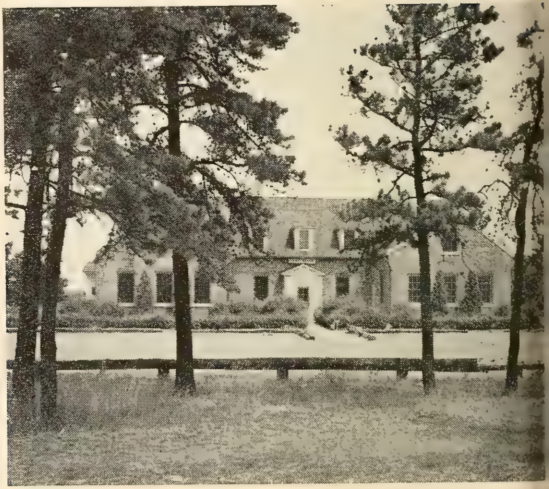
All permanent buildings of the post are included in the college area. Built under various Federal appropriations since 1928, these buildings are Colonial in design, constructed of brick and reinforced concrete, and are modern in every respect. This section of the physical plant includes 110 housing units for faculty and key members of the administrative and operational staff. These units are made up of 5-room, bungalow-type houses, 5-room apartments, 6-room apartments, and 7-room houses.

For purposes of identification, buildings used for official activities of the college have been given names precisely as is done on any college campus. However, since the college exists without benefit of individual bene-

DEVENS QUADRANGLE

Viewed across the former parade ground at Fort Devens are the four main dormitories—Worcester, Norfolk, Essex and Suffolk houses. These served as dormitories for most of the 2500 veterans who returned to the Army post to enroll in the University of Massachusetts at Fort Devens for the first two years of their college training. At extreme left is the Administration Building, and at extreme right is shown the Campus Theater.

Dormitory at Devens



Students' Social Center at Devens

Student Radio Station at Devens

factors or long tradition, the names of its buildings draw directly from the history and traditions of the Commonwealth. Accordingly, the first buildings named—exclusive of Massachusetts Hall (the Administration Building)—were named after the fourteen counties of the State. All others bear names of individuals or events of early Colonial days, or of special points of historic interest.

Dormitories are called "houses"; functional buildings are called "halls." Thus the dormitories of the great quadrangle (which houses 1200 students), by virtue of their situation with respect to the points of the compass, are denominated Norfolk House, Suffolk House, Essex House, and Worcester House. The two big garages and the Post Commissary building, having been remodeled for classroom purposes, provide Bristol Hall (20 classrooms and a lecture hall), Plymouth Hall (14 chemistry laboratories, a balance room, and 2 lecture halls), and Barnstable Hall (6 Biology laboratories). Wooden buildings, remodeled or renovated, give Hampden House (capacity 650 students), Franklin Hall (5 physics laboratories, two lecture halls and a workshop for constructing apparatus), Berkshire Hall (14 classrooms, a psychology laboratory and a business laboratory), Middlesex Hall (engineering drawing), Puritan Hall (faculty office building), and Revere Hall (former bakery remodelled to provide a superlatively complete machine shop for engineering students).

The Wachusett Infirmary and the Greylock Gymnasium are named for the two highest elevations in the state. The Merrymount Theater, the Arbella Club (campus social center), and Priscilla Hall (center of welfare activities conducted by faculty and student wives), bear names of historical moment.

The college library, located in Worcester House, provides reading, reference, open stack and periodical rooms for the students of the campus. Starting from zero as of October 1, 1946, the library had acquired, in fifteen months of operation, some 12,000 volumes, and is still acquiring texts, reference books and periodicals essential to the development of a full fledged college library. Specialized branch libraries are maintained at the offices of the various academic divisions for the convenience and help of the faculty members concerned.

Until recently, the college dining hall was located in Merrimac Hall, a former mess hall of the Army, in the Dukes House area, on the edge of the campus, approximately three-quarters of a mile from the centers of student life and activity. Since January 1, 1948, however, the completion of remodelling operations has enabled the college to operate its dining hall in the modern and pleasant facilities created in the south entry of Worcester House, and thus to provide the student body an opportunity to dine in surroundings more appropriate to the atmosphere of a college campus.

RECREATION AND STUDENT ACTIVITIES

A modern brick gymnasium, a nine-hole golf course, tennis courts, athletic fields, a toboggan slide, and a pond suitable for swimming and winter sports provide facilities which have made possible the development of a full athletic program featuring both varsity and intramural competitions. Varsity teams have had full schedules in football, soccer, cross country, basketball, hockey, baseball, track, and golf. Active intramural leagues have had competitions in touch football, basketball, baseball, and softball; the intramural program has been further augmented by boxing matches, golf tournaments, and tennis tournaments. A varied program of extra-curricular activities has flourished since the opening of the college. The student radio station is one of the finest in New England. A weekly newspaper and a literary quarterly are published throughout the academic year. An active dramatics group stages two to three programs each semester. Glee club, dance band, small symphony orchestra, and brass band cover the musical interests of the campus. A variety of clubs range from language and professional groups, through religious organizations, to hobby clubs and outing and skiing groups.

STUDENT GUIDANCE

Each student is assigned on entrance to a faculty advisor chosen for similarity of interests. The work of these advisors is coordinated through a Supervisor of Guidance and augmented by a complete testing center under the direction of the Psychology staff. The Supervisor of Guidance is a member of the Division of Records and Guidance, which centralizes all information about a student in one file so that each student can be given advice and assistance based on full information about his college life.

STUDENT GOVERNMENT

In order to assist the veteran in his readjustment to civilian life and to develop in him a sense of responsible leadership in a democratic society, a major share of the responsibility for student affairs is delegated by the college administration to the student government. In form, the student government is a representative democracy. The Constitution was drawn up by a constitutional convention and adopted by general vote of the student body. Under it two senators from each dormitory group are elected to the student Senate, the body which administers all affairs affecting the student body. The Messing Committee, the Dormitory Committee, and student representatives on the college Scholarship and Curriculum Committees, are some of the executive agencies through which the Senate supervises the student affairs of the campus. In addition to the Senate, the Constitution provides for a Judicial Board to handle disciplinary cases, and an Activities Branch to supervise the extra-curricular life of the campus.

ADMISSIONS TO UNIVERSITY OF MASSACHUSETTS AT FORT DEVENS.—On Page 85 of the Admission Section of the catalog is a complete statement concerning Admission of Veterans at Fort Devens.

EXPENSES.—Tuition, athletic and activities fees, and supplies are covered by the provisions of the G. I. Bill. Board and room rates can be met by the government subsistence allowance, but students should prepare to meet these expenses when due regardless of delays in receipt of checks. Students also should arrange to have funds to defray any supplementary expenses such as travel, laundry, clothing, and recreation, beyond the small margin afforded by the subsistence allowance after the payment of room and board.

INFORMATION CONCERNING THE UNIVERSITY COURSE

The sections of the catalogue that follow are primarily for undergraduate students in the four year degree course. Those interested in graduate study are referred to the Graduate School catalogue and in short courses to the Stockbridge School of Agriculture and other short course publications.

STUDENT EXPENSES

Expenses vary from approximately $650 to $750 per year for the normally economical student. First year costs are usually greater than those of the other three years and there is less opportunity to earn. A student is advised to have a definite plan for meeting the expenses of the first year before entering.

The following estimates of a year's expenses, based upon last year's costs, includes only those items which are strictly college and not amounts for clothing, laundry, travel, etc. These costs vary slightly from year to year. Tuition for residents of Massachusetts is $100 per year and for others $400.

	Normal
Tuition (citizens of Massachusetts)	$100.00
Room in college dormitory or private home (ave.)	150.00
Board at University Dining Hall	300.00
Books, stationery, and other supplies	90.00
Student Tax	38.50
	$678.50

INITIAL PAYMENT FOR FRESHMEN

The initial payment required of freshmen at the time of fall registration is indicated below and is made up of the following items:

Tuition (citizens of Massachusetts)	$50.00
Room rent (dormitory) (approximately)	75.00
Board (University Dining Hall)	150.00
Military Uniform (men students)	30.00
Student Tax	20.00
Books, Stationery, etc.	45.00
	$370.00

The above are only approximate figures. A bill will be rendered to the parent of each student prior to the opening of the University.

Tuition.—As a state institution the University of Massachusetts offers a low rate of tuition to all students entering from the Commonwealth, Eligibility for admission under the low residential rate is determined in accordance with the following policy established by the Board of Trustees.

A student must present evidence satisfactory to the Treasurer of the University that his domicile is in the Commonwealth of Massachusetts in order to be considered eligible to register in the University as a resident student. This means that he must have established a *bona fide* residence in the Commonwealth with the intention of continuing to maintain it as such.

The domicile of a minor shall follow that of the parents unless such minor has been emancipated. In case of emancipation the student, in addition to the requirements of these regulations respecting residence, shall present satisfactory proof respecting emancipation. Minors under guardianship shall be required to present, in addition to the certification of the domicile of the guardian, satisfactory documentary evidence of the appointment of the guardian.

No student shall be considered to have gained residence by reason of his attendance in the University nor shall a student lose residential preference during his continuous attendance at the University.

The residence of a wife shall follow that of the husband.

The prescribed form of application for classification as to residence status must be executed by each student. Misrepresentation of facts in order to evade the payment of out of state tuition shall be considered sufficient cause for suspension or permanent exclusion from the University.

Discretion to adjust individual cases within the spirit of these rules is lodged with the President of the University.

Board.—The University provides three dining halls where students may board. These are located in Butterfield dormitory, in Greenough dormitory, and in Draper Hall.

The dining halls in Butterfield and Greenough dormitories are intended primarily for the students who are residents of the dormitories in that section of the campus. Draper Hall is the dining commons for all other students. Service is on a cafeteria plan.

Students may purchase coupon books that provide full-time board at the rate of ten dollars per week, or meals may be paid for on an individual basis as they are taken.

Military Uniform.—All students taking military drill are required to make a deposit of $30 for the uniform. A rebate of this amount is made when the uniform is returned.

Student Activity Tax.—This tax, authorized by vote of the undergraduate students with the approval of the Board of Trustees, provides each student with the Collegian, the student newspaper; Index, University annual; Social Union privileges, student government, class, and other activities.

ADVANCE PAYMENT

New students will be expected to make an advance payment of $15 to the Treasurer of the University as soon as they are notified by the Registrar that they are accepted for admission. This will be considered as first payment on registration fees which will be due at time of matriculation in September. It is not refundable and will be considered as payment for admissions and registration expense if the student does not matriculate.

REFUNDS

A student who leaves the University for any reason before a semester is half completed will have refunded to him one-half the fees paid for that semester, but one who leaves after a semester is half over will be allowed no rebate of fees. There will be no refund of prepaid rent.

WHEN PAYMENTS ARE DUE

In accordance with policy established by the Board of Trustees, all charges for tuition, fees, board, and room rent in University dormitories are due at the beginning of each semester and must be paid on or before the opening date of each semester. Bills will be rendered in advance, and payment may best be made by mail. Students may not attend classes until registration charges are paid.

LATE REGISTRATION

Any student who does not complete his registration on the regular registration days will be required to pay a fine of five dollars.

FINANCIAL REQUIREMENTS FOR GRADUATION OR HONORABLE DISMISSAL

Diplomas, transcripts of record, and letters of honorable dismissal will be withheld from all students who have not paid all bills and all loans due the University or all legitimate bills for room rent and board due fraternities or private individuals. All such bills due the University must be paid ten days preceding Commencement. If paid after that date and the student is otherwise eligible, he may graduate the following year.

Private creditors of students must present itemized statement of charges to the Treasurer of the University at least 15 days before graduation if they wish to have their claims recognized by the University.

FINANCIAL AID

Scholarships, loans, and part-time employment are available for a limited number of needy and deserving students.

AID FOR FRESHMAN YEAR.—Freshmen are eligible for scholarships and part-time employment. A freshman also becomes eligible for assistance from loan funds after satisfactorily completing one semester of academic work. Scholarship application blanks may be secured from the Registrar and should be filed by May 1. Part-time employment application forms may be obtained from the Director of Placement Service and filed after a candidate has been accepted for admission.

Because of the time required for preparation of studies, few students should plan to spend more than ten hours per week in part-time employment.

Aid for Upperclassmen.—To become eligible for financial assistance, whether scholarship, loan, or part-time employment, students must file completed financial aid application forms with the Student Aid Committee in the Placement Service office by June 1 previous to the college year for which assistance is asked.

SCHOLARSHIPS

Scholarships are awarded only to needy and deserving students of high character whose habits of life are economical and whose scholastic records are satisfactory. A limited number of these scholarships are available for entering freshmen.

Scholarships are paid in installments at the beginning of each semester in the form of a credit on the student's bill. A scholarship may be discontinued at the close of any semester if the scholastic record of the recipient is unsatisfactory.

If a scholarship student withdraws from the University, any refund of University fees or charges must first be applied to reimburse the scholarship fund for the full amount of the scholarship received by the student for the semester.

The following scholarships are available:

Alvord Dairy Scholarship: for a worthy student specializing in the study of Dairy Husbandry with the intention of becoming an investigator, teacher or special practitioner in connection with the dairy industry.

Danforth Keyes Bangs Scholarship: for the aid of industrious and deserving students.

Chi Omega Award: The local chapter of the Chi Omega Sorority offers an annual scholarship of twenty-five dollars to that woman student majoring in the departments of economics or psychology who has the highest scholastic average at the end of the first semester of the senior year.

Class of 1882 Scholarship: for the aid of a worthy student of the junior or senior class.

Frederick G. Crane Scholarships: for the aid of worthy undergraduate students, preference being given to residents of Berkshire County.

J. D. W. French Scholarships: for deserving students in dairying and allied subjects; also Forestry.

Henry Gassett Scholarship: for a worthy undergraduate student.

Charles A. Gleason Scholarships: general scholarships for worthy students.

Charles H. Hood Dairy Scholarships: An unusual grant of $400 for two scholarships to be awarded to seniors whose ultimate object is the operation of their own dairy farms.

Lotta Scholarships: The Trustees of the Lotta Crabtree Agricultural Fund have made available a substantial sum for scholarships. These are limited to students registered in the Schools of Agriculture, Home Economics, Horticulture and Science. One-fourth of the amount granted is awarded to freshmen.

Margaret F. Motley Scholarship: one scholarship of $100 for an upperclass student studying Horticulture, Landscape Architecture or Floriculture.

PORTER L. NEWTON SCHOLARSHIPS: for the aid of worthy and deserving students in the field of agriculture.

BETSEY C. PINKERTON SCHOLARSHIPS: two general scholarships for graduates of the schools of the city of Worcester.

SEARS SCHOLARSHIPS: The Sears Roebuck Company provides for eight scholarships of $125 each which are awarded annually to deserving students in the freshman class who desire to major in agriculture.

WHITING STREET SCHOLARSHIPS: Scholarships of fifty dollars each for deserving students.

HELEN A. WHITTIER SCHOLARSHIP: for a deserving woman student in art as applied to living.

There are also the following special scholarships:

COTTING MEMORIAL SCHOLARSHIP—all college expenses of freshman year—for a woman student. Recipient of this scholarship is selected by a committee of the New England Branch of the Farm and Garden Association from among candidates proposed by State Leaders of 4-H Club work in the New England states.

WILBUR H. H. WARD SCHOLARSHIPS.

Twenty-five scholarships of approximately $100 known as the Wilbur H. H. Ward Scholarships. The Wilbur H. H. Ward Fund is administered by a Board of Trustees independent of the University. Applicants for these scholarships should write to Sumner R. Parker, who may be addressed at the University. They are available only to Hampshire County boys.

WOMEN'S STUDENT GOVERNMENT ASSOCIATION SCHOLARSHIP OF $50. An award by the Women's Student Government Association to a young woman student at the end of her junior year. This award is made on the basis of character and personality, scholastic achievement, campus influence and service.

GEORGE L. FARLEY SCHOLARSHIP. The Massachusetts Society for Promoting Agriculture has established a scholarship in memory of George L. Farley. The income of approximately $60 per semester is awarded to deserving 4-H Club members, men or women, recommended by the State Leader of 4-H Clubs from applications submitted to County 4-H Club Agents.

ESSO 4-H SCHOLARSHIP. The Colonial Beacon Oil Company, each year, awards a $400 scholarship payable $100 per year to a 4-H Club member enrolled in some course related to agriculture. Selection is on the basis of need, merit and ability. Application should be sent to County 4-H Club Agents.

THE BORDEN COMPANY FOUNDATION. Provides an annual Scholarship Award of $300 to that senior student in Agriculture who has achieved the highest average grade in all college work preceding the senior year. No student whose curriculum did not include at least two courses in Dairy subjects is eligible.

NEVILLE STURGIS SCHOLARSHIPS: The income from a trust set up under the trusteeship of DeBlois and Maddison by Neville Sturgis of Weston, amounting to approximately $1700 annually. This income is to be used in aiding deserving undergraduate students of the University.

Pepsi-Cola Graduate Fellowships are awarded to outstanding college seniors in the United States. Each fellowship pays full tuition and $750 a year for three years. They may be used in any field of study at any accredited graduate school in the United States. Twenty-six three-year graduate fellowships, allotted on a regional basis, are awarded each year. Detailed information may be obtained from the dean of the college or directly from the Pepsi-Cola Scholarship Board, 532 Emerson Street, Palo Alto, California.

Pepsi-Cola Scholarships for High School Seniors: The Pepsi-Cola Scholarship Board awards each year over one hundred Four-Year College Scholarships to seniors in high schools throughout the United State, Alaska, Hawaii, and Puerto Rico. Each scholarship pays full tuition fees for four years, plus an allowance of $25 a month during the school year, and a travel allowance. Scholarships are allotted on a state basis. Winners select their own colleges. Information regarding these scholarships may be obtained from high school Principals or directly from the Pepsi-Cola Scholarship Board, 532 Emerson Street, Palo Alta, California.

Ascension Farm School Scholarships. The Trustees of the Ascension Farm School offer annually approximately $2400 for scholarships. These are restricted to men from Western Massachusetts who are studying in the fields of Agriculture and Horticulture.

LOANS

Through the generosity of friends of the University, funds have been donated to provide loans for a limited number of students of the three upper classes to assist in paying tuition or other college expenses. These loans are granted, after proper consideration, to needy students of good scholarship whose habits are economical. All loans are secured by a note endorsed by a responsible party as collateral. All such loans must be paid before graduation. Upon withdrawal from the University, loans automatically become due. Interest is charged at the rate of 3% to maturity, 5% thereafter on loans from all funds except the Lotta Agricultural Fund, from which loans are made without interest. Application for loans should be made to the Student Aid Committee, Placement Service Office, South College. No loan will be granted in excess of $150 in any one year.

If funds are available at the beginning of the second semester, loans may be made in exceptional cases to members of the Freshman class whose scholastic record is satisfactory and whose budget calculations have been upset through circumstances beyond their control.

Danforth Keyes Bangs Fund.—This is a gift of $6,000 from Louisa A. Baker of Amherst, the income of which is used in aiding poor, industrious and deserving students to obtain an education in the University of Massachusetts.

Lotta Agricultural Fund.—A limited number of loans are made to students from the income of this fund. Such loans are made without interest but only to deserving students of high scholastic rank. This fund is administered by a Board of Trustees independent of the University although loans are made only upon the recommendation of the President of the University.

VINCENT GOLDTHWAIT MEMORIAL LOAN FUND.—A gift of $5,000 from Dr. Joel E. Goldthwait in memory of his son. This fund is used almost entirely for students in the Stockbridge School of Agriculture.

FRANK A. WAUGH FOUNDATION.—Graduates of the Department of Landscape Architecture and friends of Professor Frank Waugh have established this fund, to be used in part for loans to deserving seniors and fifth year students of that department. Requests for loans shall be reviewed and approved by the head of the Department of Landscape Architecture and submitted to the Board of Trustees of the Foundation, who shall make final decision as to granting of the loans and amounts thereof.

4-H SCHOLARSHIP AND LOAN FUND.—This fund is under the supervision of the State Leader of 4-H Clubs and is used to aid students preparing for agricultural and home economics service.

NATIONAL PEST CONTROL ASSOCIATION LOAN FUND.—A fund established by the National Pest Control Association for needy students in the field of Entomology.

PART-TIME EMPLOYMENT

The Placement Service is the clearing center for all part-time jobs of the University. Students are assisted in obtaining part-time work during the College year and full-time work during the summer vacation. Employment is not guaranteed but every effort is made to help those students who must work to meet their college expenses. This Office also maintains a Placement Service for graduates of the University.

In order to give assistance to as many needy students as possible, the Student Aid Committee has adopted the policy of limiting the maximum financial aid per student to the equivalent of board, or approximately $300. The average earnings of students engaged in part-time work is approximately $100 per student per year.

STUDENT LIFE AND WELFARE

HEALTH SERVICE

The University endeavors to safeguard the health of all students while on the campus and for this purpose maintains a Department of Student Health staffed by two physicians and four resident registered nurses, and a group of three Infirmary buildings.

(1) Physical examination by the Health Service is required of all entering freshmen, reentering students, and all students participating in athletics. This examination is given to freshmen during matriculation week. Evidence of a SUCCESSFUL smallpox vaccination is required.

(2) The Student Health physicians have offices in the Physical Education Building and in the out-patient Infirmary Building, where they may be consulted during college hours.

(3) The Infirmary consists of 3 buildings, one for bed patients, one for contagious cases, and one for out-patient cases, where the out-patient clinic is conducted daily by one of the Student Health physicians.

(4) The students are urged to consult the resident physicians at the first sign of physical disorder, or even for minor accidents. Many severe

illnesses and much lost time can be avoided by early or preventive treatment.

(5) No charge is made to Infirmary bed patients for the first seven days in the school year; time in excess of seven days will be charged at the rate of $4 per day. A nominal charge may be made to out-patients for miscellaneous treatments.

(6) In addition to the fee charged as specified in paragraph 5, the following additional expenses will be charged to the patient.

- (a) *Nurses.*—If a special nurse is required for the proper care of an individual, the services and board of this nurse will be paid by the patient. Such a nurse will be under the general supervision of the resident nurse.
- (b) *Professional Service.*—If a student requires continuous medical attention by a physician, he may be required to select a town physician and become responsible for fees charged by that physician.
- (c) *Supplies.*—Special medical supplies prescribed by a physician will be charged to the patient.
- (d) *Laundry.*—Expenses for personal laundry incurred by students while in the Infirmary will be charged to the individual student.

STUDENT HOUSING

It is the policy of the Board of Trustees that freshmen men and women students shall be housed in campus dormitories and be required to eat at University Dining Halls unless given permission to commute. Sophomore and upper-class students will also be required to live in University dormitories in so far as accommodations are available. Those who cannot be so housed will be given permission to live in fraternity or sorority houses or in private homes.

Students who are assigned to housing operated by the University, or homes approved by the University, are expected to occupy them for the entire school year and may not be released sooner except as their places are taken by suitable substitutes.

Dormitories will be open for occupancy on Sunday at 1:00 P.M. preceding the opening of the University.

Rooms are furnished except for necessary bedding and linen and are cared for by the students occupying them. Each occupant is held responsible for any damage done.

All student property must be removed from the rooms immediately after the final examinations in June. Such property not removed by the owner will be removed by the University and stored at the owner's expense.

The general supervision of the housing conditions of all students is in charge of the Faculty Committee on Housing.

ROOMS FOR WOMEN STUDENTS.—Dormitory rooms are available for women students at Lewis and Thatcher Halls, Abigail Adams House, and North College.

Under the supervision of the Dean of Women, life in each dormitory is directed by a council of student leaders, advised by a full-time Housemother, so that conditions in the residence hall are conducive to study and good living habits. Through Women's Student Government, the responsibility is put upon each student to live according to her own best standards as well as according to the standards of the group.

Freshmen girls will be assigned rooms in the dormitories and will be notified of the assignment prior to the beginning of college.

Near the close of each year, Sophomores and upperclassmen will draw numbers to determine the order in which rooms may be chosen for the coming year.

The Dean of Women may permit students to live off-campus for the reason that they wish to live at home, or in a sorority house, or that they have an opportunity to earn room and board in a private home.

ROOMS FOR MEN STUDENTS.—Dormitory rooms are available for men students at the Butterfield House, Greenough and Chadbourne Halls, Commonwealth Circle and other new dormitories.

All first year men students will be assigned to campus dormitories Upperclassmen wishing dormitory rooms should apply at the Asst. Registrar's Office before May 1. Those who cannot be accommodated in dormitories will be given permission to live in fraternities or private homes Assignment of dormitory rooms will be under the supervision of the Asst. Registrar.

ROOMS FOR MARRIED STUDENTS.—The University cannot guarantee facilities for married students. However, those married students who can be accommodated will be housed in Federal Circle or the University Apartment Units. Assignments are under the direction of the Assistant Registrar and inquiries should be adddressed to him. Some students may be able to locate rooms or apartments off campus.

ADVISORY SYSTEM

In order that from the day he enrolls the freshman may have some one to whom he can go for consultation and assistance, each student, at the time of registration, is assigned to a faculty adviser. It is the function of this adviser to help the student in adjusting himself to the work and life of the University. He will also receive from the Registrar's Office and discuss with his advisee the academic progress reports as issued. He will also forward these to the parents. Both students and parents are encouraged to consult with the adviser whenever there are problems regarding studies or personal adjustment to college life.

At the beginning of the second semester of the freshman year each student will discuss his vocational and specialization plans with his adviser. If he can decide definitely upon the department in which he wishes to specialize, and the adviser approves, he will take his election card to the head of that department for approval. In cases where students are not ready to designate a department of specialization they will continue as general majors during the sophomore year under the direction of an adviser assigned by the head of the School. Such general majors must select their field of specialization at the end of the sophomore year.

During the junior and senior years the student is under the guidance of the head of the department in which he is majoring or an adviser assigned by him.

RELIGIOUS LIFE

The University makes an effort to provide a wholesome and stimulating spiritual atmosphere for its students by cooperating with official agencies of the three faiths most largely represented at the University.

On the campus the religious life of Catholic students is enriched by the Newman Club, of which Father David J. Power of Saint Brigid's Parish is chaplain; Jewish students may participate in services and activities at the local Hillel House, under the chaplaincy of Rabbi Louis Ruchames of Northampton; and Protestant students may join in worship and other religious activities conducted by the Student Christian Association, under the guidance of the Reverend Arnold M. Kenseth, full-time chaplain to Protestant students.

In town, the churches of Amherst provide not only the usual opportunities for worship and participation in church work, but special events for students. Students are particularly encouraged to attend Sunday service in the local churches of their respective faiths.

STANDARDS OF DEPORTMENT

The customary high standard of college men and women in honor, self-respect and consideration for the rights of others constitutes the ideals of student deportment.

The privileges of the University may be withdrawn from any student at any time, if such action is deemed advisable.

It should be understood that the University, acting through its President, or any administrative officer designated by him, distinctly reserves the right, not only to suspend or dismiss students, but also to name conditions under which they may remain in the institution. For example, if a student is not doing creditable work he may not only be disciplined but he may also be required to meet certain prescribed conditions in respect to his studies, even though under the foregoing rules his status as student be not affected. The same provision applies equally to the matter of absences. According to the rules, juniors and seniors are allowed a certain percentage of absences from class and other exercises. This permission, which implies a privilege and not a right, may be withdrawn at any time for any cause.

Similarly, also, it applies to participation in student activities. Though this will ordinarily be governed by the rules as already laid down, yet if, in the judgment of the University authorities, a student is neglecting his work on account of these activities, the privilege of participating in them may be withdrawn for such time as is considered necessary. Moreover, it may be withdrawn as a punishment for misconduct.

ACADEMIC REGULATIONS

FRESHMAN WEEK

All members of the incoming freshman class are required to be in residence on the campus for the period known as Freshman Week. During this period an attempt will be made to orient the student. He will be given psychological and mental tests, and a physical examination. Schedules and section assignments will also be arranged. In addition there will be lectures on student activities, customs, and curricula, and a scheduled meeting with the student's adviser.

REGISTRATION

Every student must report for registration on the appointed day. All late registrants must pay a $5.00 fine. No student will be admitted to any class until he has completed the prescribed registration procedure. Changes of courses on the registration card shall be made only in the Dean's Office.

No course will be recorded on the permanent records of the University nor will a student receive credit for it, unless such course appears on the registration card for the semester and has been properly countersigned by the instructor.

ADDING OR DROPPING COURSES

A student may not add or drop a course except with the permission of the Dean. A course dropped without permission will be recorded as a failure.

CHANGE OF MAJOR

A student wishing to change his major must get a Change of Major card at the Dean's Office. This change is to be approved by the head of the Department or School which he is now majoring and also by his new major adviser. This card, properly indorsed, must be returned to the Dean's Office before the change can be approved.

MARKING SYSTEM

All grading is done on a numerical basis with 60 per cent the passing grade. A student whose daily work in any course is entirely unsatisfactory will not be permitted to take the final examination in the course and is automatically failed. If he takes the final examination and fails to pass, the instructor may report either a condition (#) or failure (F). To remove a condition, the student will have an opportunity to take a condition examination or he may repeat the course. A failed course must be repeated unless permission to substitute another course is granted by the Committee on Scholarship.

The scholastic record of each student is reported to his parents at the end of each semester. Mid-semester marks are sent to parents for the first semester only. A complete report of the scholarship record of each student during his first semester is sent to the principal of the school from which the student entered.

TRANSCRIPTS

Two transcripts of a student's record will be furnished without cost For each additional copy there will be a charge of one dollar.

CONVOCATIONS

Assemblies of students are held periodically at which attendance is required. The programs vary. Usually there is an address by an outstanding leader in education, science, government, international relations, or art. Some of the convocations are devoted to student activities such as debates, declamation contests, band and musical concerts.

STUDENT ORGANIZATIONS

One of the values received from the University course is the training one acquires through participation in student activities. Student organizations offer excellent opportunities for development of leadership and broadening of outlook.

STUDENT GOVERNMENT

The Senate is the men's governing council. It is composed of representatives elected from the Junior and Senior classes.

The Women's Student Governing Association, composed of members elected from the Senior, Junior, and Sophomore classes, is the governing council of women students.

These two organizations direct student conduct and represent the interests of the student body before the faculty.

ACADEMIC HONOR SOCIETIES

Phi Kappa Phi.—The Massachusetts Chapter of the Honor Society of Phi Kappa Phi was installed on the campus in 1904. Its prime object is to emphasize scholarship and character. Senior students from all departments of the University are eligible for election to membership provided the scholastic and character requirements of the Society are met.

Sigma Xi.—The Society of Sigma Xi is a scientific fraternity to which members are elected on the basis of outstanding scientific research. The local chapter was established in 1938.

HONORARY SOCIETIES

Adelphia.—A men's senior honorary society, recognizing men students who have been prominent in the extra curricular activities of the campus.

Isogon.—A women's senior honorary society. Its purpose is to recognize outstanding women students on the campus.

FRATERNITIES AND SORORITIES

Social fraternities on the campus include Alpha Epsilon Pi, Alpha Gamma Rho, Alpha Sigma Phi, Kappa Sigma, Lamba Chi Alpha, Phi Sigma Kappa, Q.T.V., Sigma Alpha Epsilon, Sigma Phi Epsilon, Tau Epsilon Phi, and Theta Chi. An Inter-Fraternity council, consisting of representatives of these fraternities, has charge of rushing and all general matters dealing with fraternity life.

Sororities include Chi Omega, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Delta Tau, and Sigma Kappa. The Pan-Hellenic Council, made up of representatives from the sororities, supervises rushing and other sorority matters.

PUBLICATIONS

THE COLLEGIAN.—This is a weekly newspaper published by undergraduates.

COLLEGIAN QUARTERLY.—A magazine in which the literary and artistic efforts of the students are published.

INDEX.—The College Year Book published by the senior class.

ACADEMIC ACTIVITIES

The University Musical Clubs include an orchestra, a band, and men's and women's glee clubs. These make various public appearances during the year.

The Dramatic Club, the Roister Doisters, presents annually a revue and a play. There is a Debating Society which conducts both intramural and intercollegiate debates. All academic activities are supervised by the Academic Activities Board composed of alumni, faculty, and students, and find recognition in award of gold and silver medals.

INTER-COLLEGIATE ATHLETICS

The University is represented in inter-collegiate athletics by teams in all the leading sports, including football, baseball, track, hockey, soccer, swimming and basketball. General policies governing athletics are directed by the Athletic Board, composed of alumni, faculty, and students.

PROFESSIONAL CLUBS

There are numerous professional clubs established in connection with the various major courses of study. These clubs stimulate the students' professional interest in their chosen subject-matter fields and afford opportunity for discussion of technical subjects of mutual interest.

HONORS, PRIZES, AWARDS

SCHOLARSHIP HONORS

DEAN'S SCHOLARSHIP GROUPS.—At the beginning of each semester a list is posted of those students who during the previous semester made a general average of 80 percent or better. Three groups are recognized: those between 90 and 100; those between 85 and 90; and those between 80 and 85. Sophomores, juniors and seniors in the first two groups are allowed considerable freedom in the matter of class attendance.

DEPARTMENTAL HONORS.—A student who has shown outstanding promise within some department and has maintained a general scholastic average of 80 percent or better is permitted to apply for the privilege of registering for departmental honors. If his application is accepted by his department and the Honors Committee, he is allowed to pursue a course of independent study within the department of his choice throughout his senior year. This may include intensive reading, investigation or laboratory work in connection with some problem that he chooses for his consideration. The objective is to create on the part of the student initiative, the power of independent investigation and to develop in him the spirit of research. Although the student is responsible for his undertaking he is encouraged to consult with his department in regard to his work should the need arise. At the close of his study the student presents a thesis covering his investigation. In addition he may be required to appear for an oral or written examination. If by the excellence of his work he satisfies all the requirements of his department and the Honors Committee, his name will appear on the commencement program as receiving honors in the field of his specialization.

SCHOLASTIC PRIZES

Phi Kappa Phi Award for Scholarship.—Massachusetts Chapter of the Phi Kappa Phi, honorary scholarship society, offers an award of $50 for outstanding work in scholarship. This is given to some member of the senior class at the opening of school in the fall. The award is based on the record of the first three years.

The Burnham Prizes.—These were made possible through the generosity of Mr. T. O. H. P. Burnham of Boston. Prizes of $15 and $10 are awarded to those students delivering the best and second best declamations in the Burnham contest. The preliminary contests are open under certain restrictions to freshmen and sophomores.

The Flint Prizes.—The Flint Oratorical Contest was established in 1881 by a gift of the late Charles L. Flint, a former president of the College. After his death the prizes were continued by college appropriation. Prizes of $30 and $15 are awarded as first and second prizes to those two students delivering the best orations in this contest.

The Hills Botanical Prize.—This is given through the generosity of Henry F. and Leonard M. Hills of Amherst, for the first and second best herbaria. Competition is open to members of the senior, junior and sophomore classes. First prize $20, second prize $15.

The Betty Steinbugler Prize in English.—This prize was endowed by John L. Steinbugler, New York City, in honor of his daughter Elizabeth Steinbugler Robertson, a graduate of this College in 1929. It is awarded to a woman in the junior or senior class who has written the best long paper on a subject of literary investigation in a course in English during the year.

Massachusetts Society for Promoting Agriculture Prizes.—Three prizes of $25, $15, and $10 to be awarded to those senior students who are judged to have made the best records in the theoretical and practical work in agriculture required in their course of study, and in the special written and oral examination prepared for the purpose of this award.

ATHLETIC AND ACADEMIC PRIZES

The Allan Leon Pond Memorial Medal.—This medal is awarded for general excellence in football in memory of Allan Leon Pond of the class of 1920, who died February 26, 1920. He was a congenial companion, a devoted lover of Alma Mater, a veteran of the Great War, a fine all-round athlete and a true amateur. He would rather win than lose, but he would rather play fair than win. He has been characterized as a typical student of this College.

The Thomas E. Minkstein Memorial Award.—This award is made by the Class of 1931 in memory of their classmate who died July 16, 1930, while he was captain-elect of football. The award is given to one of the outstanding men in the Junior Class who has as nearly as possible attained those standards of athletics, scholarship and leadership set by him whose memory this award honors.

THE GEORGE HENRY RICHARDS MEMORIAL CUP.—This cup is awarded annually to the member of the basketball team who shows the greatest improvement in leadership, sportsmanship, and individual and team play during the year. It is in memory of George Henry Richards of the Class of 1921 who died suddenly while a student at the College.

THE JOSEPH LOJKO MEMORIAL PLAQUE.—This plaque is presented to a senior who must be a letter man, have a satisfactory scholastic record and show those qualities of enthusiasm and cooperation which make for leadership. An award in honor of Joseph Lojko of the class of 1934, outstanding athlete who died while a senior in the College.

ACADEMICS CONSPICUOUS SERVICE TROPHY.—This trophy is awarded annually to that student who has made the most unique contribution to the Academic Activities during the year.

ACADEMICS MANAGERS' PRIZE.—Fifty dollars in gold awarded annually to that Academics manager who fulfills his routine duties most efficiently.

MILITARY HONORS AND AWARDS

Competed for yearly and presented at the Final Military Review.

SENIOR CLASS

All Honor Graduates tendered a commission in the Regular Army or Air Force.

The Sons of the Loyal Legion Trophy.

Awarded annually by the Massachusetts Chapter of the Sons of The Loyal Legion to the senior cadet ranking highest for the year in Military Scholarship and Efficiency. Winner's name is engraved on a plaque and a sterling silver goblet, appropriately engraved, is given to him to keep in his permanent possession.

JUNIOR CLASS

The Massachusetts Chapter Reserve Officers Association Trophy.

Awarded annually by the Massachusetts Chapter ROA and the Springfield Chapter ROA to the winning junior under the same conditions as given for the senior award. The goblet is donated and presented by the Springfield Chapter.

SOPHOMORE CLASS

The Elizabeth L. McNamara Trophy.

Awarded annually by Mrs. Elizabeth L. McNamara, a trustee of the University for many years, to the winning sophomore under the same conditions as given for the senior award.

FRESHMAN CLASS

The Amherst Rotary Club Trophy.

Awarded annually by the Amherst Rotary Club to the winning freshman under the same conditions as given for the senior award.

Qualification badge U. S. Army for Rifle Marksmanship.

Open to Cadets of Any Class

The Military Department Trophy.

The Military Department of the University awards a sterling silver goblet to the cadet of any class who has been of the most value to the Cadet Corps during the past year.

The Massachusetts Chapter National Rifle Association Cups.

Awarded annually by the Massachusetts Chapter NRA.

Sterling silver goblets presented to the highest individual scorer on both the Rifle Team and the Pistol Team.

Qualification Badges U. S. Army for cadets on either Rifle or Pistol Teams who have qualified with the necessary scores.

ALUMNI ASSOCIATION

The Associate Alumni is the general organization of the Alumni of Massachusetts State College. The Association maintains headquarters at Memorial Hall erected by Alumni and friends to honor those men of the College who died in World War I. It publishes a monthly bulletin and, periodically, an Alumni Directory. It also sponsors local Alumni Clubs. According to a tradition set by the class of 1940, all seniors of each graduating class become members of the Association at graduation.

The Associate Alumni fosters the continued interest of all former students in one another and the College. It also seeks to promote the welfare of the College in every way possible. Lewis Hall and the Butterfield House are self-liquidating dormitories built under the sponsorship of the Association.

The governing body of the Associate Alumni consists of its officers and a Board of 16 Directors. Four Directors are elected each year and serve a term of four years.

ADMISSION TO THE UNDERGRADUATE COLLEGE

The University of Massachusetts does not have room at present to admit all qualified applicants. Since accommodations now limit the entering class to 250 men and 150 women, candidates are advised to file their application for admission before March 1 of the year in which they plan to enter. *Application blanks may be obtained by writing to the Registrar, University of Massachusetts, Amherst, Massachusetts.*

The undergraduate college includes the schools of Liberal Arts, Science, Engineering, Home Economics, Agriculture and Horticulture. Programs are available also in Business Administration and Physical Education. All candidates for a Bachelor of Arts or Bachelor of Science degree in any of these schools take courses required for a general education during the first two years, and select a field of concentration from among 25 fields during the last two years.

The record of the student in the secondary school is the chief basis for admission. Only qualified students can be accepted, for it would be an injustice to a youth for the University to admit him or her when indications are that the applicant would fail. The University is accredited nationally and regionally, and its students must meet the highest academic standards to remain in college.

Two methods are used to establish qualifications of applicants. (See *Methods of Admission* below.) The admissions policy of the University is to select the best qualified of the qualified applicants. The University also follows a policy of admitting students from every section of the state, it being a part of the general education program of the University to bring together on one campus students of different interests and backgrounds.

Although preference is given to Massachusetts students, the University in normal times admits students from other states which have state universities that admit Massachusetts students. In normal times students of foreign nations are also admitted.

In addition to selecting the best qualified as judged by the secondary school record or examinations, the Admissions Committee of the University considers the character and health of the applicant. The University seeks to select those applicants who give promise of profiting most by the opportunities for study that the University affords, and hopes to admit all qualified applicants when the post-war emergency is over.

The Registrar welcomes inquiries by letter or in person from secondary school students and their parents. Advice will be given to any prospective student of the University of Massachusetts or any other college or university. A personal interview is recommended for all applicants to the University.

SUBJECT REQUIREMENTS FOR ADMISSION

The subjects of preparatory study required for admission call for the satisfactory completion of a four-year high school course or its equivalent and are stated in terms of units. A unit is the equivalent of at least four recitations a week for a school year. High school graduation alone is not sufficient, however. The applicant's record must also indicate promise of success and ability to profit by the opportunities which the University has to offer.

Sixteen units of secondary school work must be offered, selected according to the following requirements:

Prescribed	*Units*
Algebra	1½
Plane Geometry	1
English	4
Foreign Language (2 years of 1 language)	2
U. S. History	1

The remaining units are elective and may be selected from the following subject matter:

a. Mathematics
b. Science
c. Foreign Language
d. History and Social Studies
e. Free electives (not more than four units)

Free elective subjects are those not included in groups a-d, as for example: Music, Art, Drawing, Typewriting, Aeronautics, Agriculture, Home Economics, etc. Such free electives are allowed in order that the student who wishes may have some opportunity to elect among other high school offerings, while at the same time covering the fundamental requirements for college work.

Students planning to pursue an engineering curriculum should offer two years of Algebra, one of Plane Geometry, and one-half year each of Trigonometry and Solid Geometry. Chemistry and Physics are also advised. Those deficient in the Mathematics should plan to cover it during the summer prior to entrance or expect to take five years to complete the course.

In high schools organizing agricultural club work under the supervision and rules of the Junior Extension Service of the University, one credit is granted for each full year of work approved by the State Leader.

Candidates of exceptional ability and promise may be considered for admission even though all the prescribed courses were not included in their high school program.

METHODS OF ADMISSION

Plan A. Students applying from accredited schools and making the college recommendation grade of the school are considered certified for admission.

In some cases applicants will not be fully certified, however. In such instances, the Admissions Committee will give a candidate the choice of taking certain entrance examinations offered by the University or the College Board Scholastic Aptitude and Achievement Tests as described under Plan B. Applicants are advised to file their applications before March 1, therefore, in order that they may know well in advance what further must be done to qualify for enrollment.

Superior graduates of Vocational Schools of Agriculture in Massachusetts and Vocational Agricultural Departments in Massachusetts High Schools may be accepted for the Degree of Bachelor of Vocational Agriculture provided:

a. They are unqualifiedly recommended by the Vocational Division of the Department of Education as bona fide Vocational Graduates with superior ranks; and

b. That they can present at least 16 units of certified entrance, approved as to quality and quantity by the State Department of Vocational Education.

Plan B. By this plan a student's qualifications will be based upon his school record and the results of the Scholastic Aptitude Test and three Achievement Tests of the College Entrance Examination Board. Candidates will ordinarily take these examinations either in April or June of their senior year. Application blanks and a bulletin of general information may be secured from the College Entrance Examination Board, P. O. Box 592, Princeton, New Jersey.

The University realizes that though almost all students will qualify under either Plan A or B, there will be a few promising candidates who for one reason or another are unable to meet fully the subject requirements for enrollment. Such applicants are requested to present their individual problems to the Registrar in order that the Admissions Committee may outline for them what must be done to qualify for enrollment.

ADMISSION OF VETERANS

The policy of the University is to enroll all qualified veterans, both freshman and transfers with less than four semesters of college credit, at Fort Devens. Veterans in all majors except Horticulture and Agriculture remain at Devens until they have the equivalent of four semesters of college work. They may then transfer to the permanent campus at Amherst for their specialized upper-class work. Students who plan to major in Horticulture and Agriculture make the transfer after they have completed the equivalent of two semesters.

The program at Devens provides the same courses as are offered at Amherst for the first four semesters in the School of Liberal Arts, including business administration, the School of Science, the School of Engineering, the Division of Physical Education. The first two semesters at Devens provide the same courses as at Amherst in the Schools of Agriculture and Horticulture. The requirements in these several schools and divisions are described in the section of the catalog headed Schools and Divisions of Instruction.

Application blanks for admission to Devens may be obtained by writing the Board of Admissions, University of Massachusetts, Amherst, Massachusetts. The completed application should be returned to the Board of Admissions. Entrance requirements are the same at Amherst and Fort Devens. Applicants who do not qualify for admission according to established admission standards may do so by passing entrance examinations which are given previous to each semester. Present plans call for entering classes of veterans at Devens in September, February, and June.

ADMISSION TO ADVANCED STANDING

A limited number of students from approved colleges may be admitted on transfer to advance standing. Since applicants for such admission usually exceed the number that can be accepted, they are placed on a competitive basis. Acceptance will thus depend upon recommendations and quality of record.

A student applying for transfer should first of all be able to meet the entrance requirements of the University of Massachusetts. He should also submit the following:

a. A letter outlining his reason for wishing to transfer and describing briefly the type of major work he will follow if accepted for admission.

b. An official transcript of his entrance credits and college record to be sent by the Registrar of the College he is attending. This should be forwarded as soon as possible after the close of the semester preceding the one for which he will transfer.

At the time he is notified that he can be accepted for admission the student will be given a tentative statement of the amount of transfer credit he will receive. This credit will be finally determined, however, after he has spent a year at the University and his scholarship has been thoroughly tested.

At least one consecutive year of work in residence is required of any transfer student desiring to be recommended for the Bachelor's degree.

EXAMINATION SCHEDULE

Entrance examinations for admission to the University of Massachusetts will be held at the following centers:

Amherst, Stockbridge Hall, Room 114.

Cambridge, Massachusetts Institute of Technology, Massachusetts Avenue entrance.

SCHEDULE FOR ENTRANCE EXAMINATIONS

JUNE 11, 12, 1948

June 11, Friday

9:00 A. M. Algebra
2:00 P. M. Language: French, German, Spanish, Latin

June 12, Saturday

9:00 A. M. English
2:00 P. M. Mental Test

Special Veterans' Examinations for the classes entering Devens are given in September, January and May. The schedule of these examinations will be sent each applicant after he has registered for them.

SCHOOLS AND DIVISIONS OF INSTRUCTION

Resident instruction is organized on a school and divisional basis. In the undergraduate college there are six schools and two divisions. The schools are: School of Science, School of Liberal Arts, School of Horticulture, School of Home Economics, School of Engineering, School of Agriculture.

The Divisions are Physical Education and Military Science.

This section of the catalogue presents the opportunities for study in these six schools and two divisions, and describes the curricula available in each. Brief descriptions are given of the major work offered in the several departments and the special curricula which cut across departmental lines. The adviser in charge of each major is indicated. This adviser will aid the student in planning his program of studies and give him more complete information in regard to the qualifications for and opportunities in his particular field. For a description of specific courses refer to the Directory of Courses.

REQUIREMENTS FOR GRADUATION

At the beginning of his freshman year each student selects a school or division in which he will carry his major work. One of the fundamental objectives of all programs, however, regardless of School, is a general cultural education which should be the mark of every college graduate. With this end in view all candidates for the B.S. or A.B. degree must take certain required courses. Except for the History, these must be satisfied in the first two years. Included are English 1, 2, 25, 26; Speech 29 and 30; Economics 25; Psychology 26; and twelve semester hours of Science. In addition at least three hours of History must be elected from one of the following: History 5, 6, 25, 59, or 60.

The requirements in Physical Education must also be satisfied. All physically fit men students must take Military 1, 2, 25, and 26. A course of lectures on College Adjustments is required of women students.

Since the work of the first two years is largely directed toward a broad, general education as a foundation for the more specialized training of juniors and seniors, it follows that the program of studies for all schools is fairly uniform up to the junior year. Because of this students can readily change from one curriculum to another or even from one school to another as both freshmen and sophomores.

The minimum requirement for graduation is 60 junior-senior credits in addition to the satisfactory completion of the required and elective work of the first two years. Except upon special permission from the Scholarship Committee no junior or senior shall enroll for more than 17 or less than 14 credits each semester.

During the junior and senior years each student shall complete not less than 15 and not more than 30 credits in junior-senior courses in the department in which he is specializing.

SCHOOL OF AGRICULTURE

V. A. Rice, *Dean*

"Without food, nothing else matters." Perhaps partly for this reason at least, Agriculture is America's largest single industry. Not only is it large, but it is also extremely varied.

Over six million individual farms are now operated in the United States and many more will be needed for an "economy of abundance" in which all our citizens are to have, among other things, an adequate diet.

About one-quarter of a million scientists are now serving in Agriculture and its related fields, and more are needed if we are to increase our crop and animal production; conserve and improve our soil; control or eliminate plant and animal pests; improve the efficiency of our processing, storage, and distributing services; discover and apply new scientific and engineering principles to agricultural production and distribution, and new social and humanistic principles to rural living.

About eight million people make their living by providing necessary supplies to farmers and by moving our huge agricultural production to the consumer's table. Their tasks vary from supplying money, feeds, fertilizers, and a host of other necessities to farmers, to processing, storing and distributing the raw materials of farm production.

Agriculturally trained students find outlets for their training, ambition, and energies in the three principal fields suggested above, namely: (1) actual farm production either as farm owners or managers; (2) some scientific phase such as research on either a state, federal, or commercial basis; teaching at the secondary, collegiate, or extension level; or administration of state or federal production, conservation or financial programs; (3) the commercial phases of supplying farm machinery, electric power and equipment, seeds, feeds, fertilizers, insecticides, etc., or in processing, storing and marketing agricultural products of all sorts through either private or cooperative channels.

The work in the School of Agriculture is planned to provide a sound superstructure of applied science and technology reared on a firm and broad foundation of pure science and social and humanistic studies. Upon graduation the student will have devoted about one-quarter of his time to pure science, one-quarter to social and humanistic studies, and one-half to applied science and technology in the various fields of Agriculture.

All students in the School must successfully complete one summer of placement training on a farm, in a dairy plant or in some business allied to Agriculture as stipulated by their major adviser. It is recommended that this graduation requirement be met during the summer immediately following the Sophomore year of College residence.

During the spring of the Senior year, they must also pass a comprehensive written examination set by the Department in which they are majoring; a comprehensive oral examination covering the whole field of Agriculture administered by a visiting board of Agricultural leaders; and must present an oral paper on some personally chosen topic before another visiting board of Agricultural leaders.

In order to prevent too narrow undergraduate specialization, no student will be allowed to offer for credit more than 16 junior-senior semester courses from the Schools of Agriculture and Horticulture. In other words, one or two courses in Science or Liberal Arts must be carried during each semester of the junior and senior years.

CURRICULA IN AGRICULTURE

The School of Agriculture comprises the following Departments: Agricultural Economics and Farm Management; Agronomy; Animal Husbandry; Dairy Industry; Poultry Husbandry; and Veterinary Science. Students may major in any one of these Departments (except Veterinary Science) during the junior and senior years, or may take the curriculum in General Agriculture. The engineering phases of Agricultural production and processing are handled in the Division of Engineering.

UNIFORM FRESHMAN AND SOPHOMORE YEARS

All students majoring in Agriculture will take the following uniform curriculum during the first two years:

FRESHMAN YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
[1]Mathematics 7, Algebra and Trigonometry	3	Mathematics 8, Algebra	3
Chemistry 1, General	3	Chemistry 2, General	3
Botany 1, General	3	Zoology 1, General	3
Agricultural 1, Survey	3	Agronomy 2, Soils	3
Military 1 (men)	3	Military 2 (men)	2
Physical Education 3 (men)	1	Physical Education 4 (men)	1
Physical Education 7 (women)	2	Physical Education 8 (women)	2
		Hygiene (women)	1

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Economics 25, Elements	3	Psychology 26, General	3
[2]A Science		[2]A Science	3
[3]Dairy Industry 25 and or	3	[3]Animal Husbandry 26 and or	3
Poultry Husbandry 25	3	Agriculture Economics 26	3
Military 25 (men)	2	Military 26 (men)	2
Physical Education 27 (women)	2	Physical Education 28 (women)	2

[1] Students who are prepared and wish to take Calculus as sophomores should elect Mathematics 7 and 10. Candidates for the Bachelor of Vocational Agriculture degree take History in place of Mathematics.

[2] To be selected from the following:

1st Semester	*Credits*	*2nd Semester*	*Credits*
Bacteriology 31, 31A	4	Physiology 32	3
Botany 25	3	Botany 26	3
Chemistry 29	4	Chemistry 30	4
Chemistry 31	3	Chemistry 32	3
Geology 27	3	Geology 28	3
Mathematics 29	3	Mathematics 30	3
Physics 25	4	Physics 26	4
Zoology 25	3	Entomology 26	3

[3] Both Dairy Industry and Poultry Husbandry or only one may be elected in the first semester; Animal Husbandry and Agricultural Economics in the second. If only one is elected each semester, an additional Science should be selected from the above group.

Poultry 25 is not open to majors in Poultry Husbandry.

JUNIOR-SENIOR CURRICULA IN AGRICULTURE

At the end of the sophomore year each student selects one of the following curricula as his major for the last two years.

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

A. H. Lindsey, *Adviser*

The purpose of the Agricultural Economics and Farm Management Major is to train students for positions in those private and government institutions servicing the agricultural industry and to assist in the training of farm managers.

The Department maintains an inventory of current price information and agricultural production reports from which price study and analysis may be made. Statistical machines are also available for computation and analysis. The laboratories of the Department must be found in business institutions and on farms in Massachusetts with which contact is maintained.

Two curricula are available.

AGRICULTURAL ECONOMICS

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ag. Ec. 55, Mark'g Farm Prod.	3	Ag. Ec. 56, Coop. in Agri.	3
Ag. Ec. 57, Agri. Credit	3	Agricultural Electives	6
Agricultural Electives	6	General Electives	6
General Electives	3		

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Economics 81	3	Agri. Ec. 76, Farm Mgt.	4
Agri. Ec. 79, El. Statis.	3	Agricultural Electives	3
Agricultural Electives	3	General Electives	9
General Electives	6		

All Agricultural Economics majors must take the courses listed above. Specialization may be in one of the three following fields: (1) Animal Products, (2) Fruits and Vegetables, (3) Feeds and Fertilizers.

The following courses must be completed for each of these specialized fields:

Animal Products	*Fruits and Vegetables*	*Feeds and Fertilizer*
An. Husb. 53	Pomology 53	Agronomy 51
An. Husb. 73	Pomology 77	Agronomy 52
Dairy 52	Olericulture 74	Agronomy 78
Dairy 77	Olericulture 78	An. Husb. 51
Dairy 78	Food Technology 51	An. Husb. 78
Poultry 75	Food Technology 52	Poultry 51

FARM MANAGEMENT

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agri. Ec. 55, Mktg. Farm Prod.	3	Agri. Ec. 56, Coop. Agri.	3
Agri. Ec. 57, Agri. Cr.	3	Agronomy 52, Soil Util.	3
An. Husb. 51, Nutrition	3	Agri. Ec. 78, Land Econ.	3
Electives	6	Economics 58, Bus. Law 70	3
		Electives	3

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agri. Ec. 71, Theory	3	Agri. Ec. 76, Farm Mgt.	4
Agronomy 51, Field Crops	3	An. Husb. 78, Dairy Cattle Prod.	4
Forestry 55, Mgt. Woodlands	3	Poultry 78, Management	2
Electives	6	Electives	6

AGRONOMY

Dale H. Sieling, *Adviser*

The Department of Agronomy is equipped with modern soils, crops and chemical laboratories, greenhouses, and utilizes parts of the College Farm for fertilizer and plant growth experimentation, and for demonstration of soil utilization and conservation.

The courses are designed to give instruction concerning the basic knowledge of the soil and its management, fertilizers, and their uses as related to the principal products of the field.

Crop culture and management courses are presented for those students from other departments who intend to make general farming their primary occupation after graduation. Crop improvement practices and the science of crop improvement are stressed for those who are interested in agronomy as a specialty. Instruction is given to prepare students for employment in the soil Conservation Service, governmental bureaus and commercial services where application of scientific principles is emphasized.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agron. 51, Field Crops	3	Agron. 52, Soil Utilization	3
Plant Breed'g 51, Genetics	3	Electives	9
Electives	6		

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agron. 57, Soil Formation	3	Agron. 78, Fertilizers	3
Chem. 51, Organic	4	Chem. 52, Organic	4
Electives	9	Electives	9

ANIMAL HUSBANDRY

V. A. Rice, *Adviser*

In the College barns are maintained Percheron horses; Ayrshire, Guernsey, Hereford, Jersey, Holstein and Milking Shorthorn cattle; Shropshire and Southdown sheep; and Chester White swine. The College Farm is operated as a livestock farm producing all its necessary roughage in the form of pastures, hay and silage and a portion of its required grain.

The broad purpose of the Animal Husbandry major is that of providing the basic training for specialists in Animal Husbandry. Upon graduation, opportunities are available in the practical, scientific or commercial fields of Animal Husbandry; i.e., livestock farming, research, teaching, administration, or in the business phases of the livestock industry.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
An. Husb. 51, Nutrition of Farm An.	3	An. Husb. 56, Horse and Fat Stock Prod.	4
An. Husb. 53, El. Meat Packing	3	Agron. 78, Fertilizers	3
Agron. 51, Field Crops	3	Vet. Sci. 76, Gen. Vet. Pathology	3
Vet. Sci. 75, Comp. Vet. Anatomy	3	Electives	6
Electives	3		

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
An. Husb. 75, An. Breeding	4	An. Husb. 78, Dairy Cattle Production	4
An. Husb. 81, Seminar	1	An. Husb. 82, Seminar	1
Agri. Ec. 55, Mktg. Farm Products	3	Agri. Ec. 76, Farm Mgt.	4
Electives	9	Electives	9

DAIRY INDUSTRY

H. G. LINDQUIST, *Adviser*

Courses in Dairy Industry aim to teach the students sound, modern methods of milk handling and the manufacture of dairy products, as well as the practical application of Chemistry, Bacteriology, and Economics to the many phases of dairy work.

The Department of Dairy Industry is housed in Flint Laboratory, a building fully equipped with modern machinery for handling, marketing, and testing milk, butter, cheese, and ice cream.

In addition to the opportunities offered the Dairy Industry graduate as manager of a milk or ice cream plant, he is also prepared for college or high school teaching; for service in the fields of extension, research and investigation; and for various phases of sanitation and public health work with town, city, state or federal departments.

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Dairy Ind. 77, Butter and Cheese	4	Dairy Ind. 50, Judging	1
Chem. 51, Organic	4	Dairy Ind. 52, Mkt. Milk	4
Bact. 61, Public Health	3	Chem. 52, Organic	4
Electives	6	Electives	6

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Dairy Ind. 75, Chemistry	3	Engineering 80, Dairy Mech.	2
Dairy Ind. 79, Seminar	1	Dairy Ind. 78, Ice Cream	4
Bact. 81, Applied	3	Dairy Ind. 80, Seminar	1
Electives	9	Bact. 82, Applied	3
		Electives	6

POULTRY HUSBANDRY

F. P. JEFFREY, *Adviser*

The Department gives instruction in the science, art and practices of poultry keeping, not only to students specializing in this Department, but also to those in other departments who desire supporting work in Poultry Husbandry. The major courses prepare men for the successful operation of commercial poultry and breeding farms and hatcheries either as owners or managers; for high school, college and federal work in teaching, extension and research; and as service men, specialists and managers in industrial fields allied to the Poultry industry.

Rhode Island Red, Barred Plymouth Rocks, White Plymouth Rocks, New Hampshires, and S. C. White Leghorns and several other breeds are maintained on a commercial basis at the Poultry Plant. There are modern buildings in which ventilation, breeding, feeding, incubation, brooding, marketing and managerial experimental projects are taking place, with up-to-date equipment.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Poultry Husb. 55, Housing and Sanitation	3	Poultry Husb. 52, Incubation and Brooding	3
Poultry Husb. 53, Judging	3	Poultry Husb. 56, Nutrition	3
Physiology 32	3	Agricultural Economics 76	4
Electives	9	Electives	6-7

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Poultry Husb. 75, Market'g	2	Poultry Husb. 78, Seminar	3-4
Poultry Husb. 77, Breeding	3	Poultry Husb. 76, Turkey Prod.	2
Electives	12	Vet. Sci. 88, Avian Path.	3
		Electives	8-9

CURRICULUM IN GENERAL AGRICULTURE

V. A. Rice, *Adviser*

If, instead of majoring in any single Department, a student wishes to spread his major over the whole field of Agriculture, he may elect the following curriculum in General Agriculture:

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
An. Husb. 51, Nutrition of Farm Animals	3	Dairy Ind. 52, Market Milk	4
Agron. 51, Field Crops	3	Agron. 78, Fertilizers	3
Pomology 53, General	3	Olericulture 78, Commercial	3
Electives	6	Electives	6

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agri. Ec. 55, Mktg. Farm Prod.	3	Agri. Ec. 76, Farm Or. and Mgt.	4
Vet. Sci. 51	3	An. Husb. 78, Dairy Cattle Prod.	4
Forestry 55, Mgt. of Woodlands	3	Poultry Husb. 78, Farm Org.	2
Electives	6	Electives	6

CURRICULUM IN AGRICULTURE AND HORTICULTURE FOR EXTENSION WORK

James W. Dayton, *Adviser*

There is an excellent opportunity in the Extension Service for a limited number of students interested in county agent and 4-H Club work. For a position in this field a student should have a general agricultural and horticultural education. Apprentice training between the junior and senior years is recommended.

FRESHMAN AND SOPHOMORE YEARS

For the first two years the student follows the curriculum in either the School of Agriculture or the School of Horticulture.

JUNIOR-SENIOR CURRICULUM

The student chooses a major in Agricultural Economics, Animal Husbandry, Pomology, Poultry, or Olericulture, taking 15 credits in the department in which he is specializing and the following courses: Economics 55, Education 52, English 81, Journalism 85 and 86, Psychology 55, Speech 91 and 92.

Electives should be chosen from the following, if not included in the freshman or sophomore year, or as a major:

Agriculture 1
Agricultural Economics 26, 55, 76, 82
Agronomy 51, 78
Animal Husbandry 26, 51, 75, 78, 91
Bacteriology 31
Botany 25, 51, 77, 78
Chemistry 31, 32
Dairy 25
Agricultural Engineering 72, 74
Entomology 26, 51, 80
Forestry 55, 56
Geology 27, 28
History—3 credits
Horticulture 1
Olericulture 25, 51, 74, 78
Physics 57
Pomology 26, 51, 53, 56
Veterinary 51

VETERINARY SCIENCE

Though major work in Veterinary Science is not available, the Department does offer supporting courses to assist students who expect to enter the various fields of Agriculture, Public Health, teaching and laboratory work in the biological sciences or Veterinary Medicine.

SCHOOL OF ENGINEERING

G. A. MARSTON, *Acting Dean*

The departments of agricultural engineering, civil engineering, mechanical engineering and electrical engineering comprise the School of Engineering. Each department offers a curriculum leading to a Bachelor of Science Degree in that particular branch. An optional curriculum in industrial engineering is offered in the mechanical engineering department.

Engineering can be defined as the combination of science and art by which materials and power are made useful to mankind. An engineer requires intensive technical training but at the same time he should acquire the broad education that distinguishes the professional man from the technician. His education does not end with formal schooling but continues throughout his life as he accumulates experience.

The curricula in engineering have been carefully prepared to offer each student the opportunity to acquire a sound training in the fundamental work of the various branches of his chosen field. At the same time he receives a thorough training in the sciences and mathematics, which are the important tools of the engineer. About twenty per cent of his time is devoted to the social and humanistic studies. Some opportunity to pursue his particular interest is offered in the senior year.

The curriculum of the freshman year is the same for all but the agricultural engineers. Specialization to a limited extent begins in the sophomore year.

FRESHMAN YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Mathematics 5, Analytical Geom.	4	Mathematics 6, Diff. Calculus	4
Physics 25, General	4	Physics 26, General	4
*Mechanical Engineering 1 (Drawing)	2	*Mechanical Eng. 2 (Drawing)	2
Military 1	3	Military 2	2
Physical Ed. 3	1	Physical Ed. 4	1
Elect one of the following:			
History 5	3	History 6	3
German 1, 5	3	German 2, 6	3
French 1, 5, 7	3	French 2, 6, 8	3
Spanish 1, 7	3	Spanish 2, 8	3

* Agricultural Engineering majors take Mechanical Engineering 27 and 28, Shop (3 credits each), in place of Mechanical Engineering 1 and 2.

* Light Building Construction majors take Agr. Engin. 2 (3 credits) in place of Mechanical Engineering 2.

JUNIOR-SENIOR CURRICULA

Majors in Engineering will select one of the following curricula.

AGRICULTURAL ENGINEERING

H. N. STAPLETON, *Adviser*

Agricultural engineering is concerned with the application of scientific engineering principles to the agricultural industry in which mechanical and electrical power, processing equipment, design and development of a farm structure, soil and water conservation, research, extension, teaching, and promotional activities form parts.

The curriculum is designed to prepare students soundly in basic sciences, engineering, and humanistic subjects for service in this expanding field. There is opportunity for limited specialization and generous provision for electives in the third and fourth years. An optional curriculum in Light Building Construction is also offered by this department.

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Eng. 25, Lit. and Speech	3	English 26, Lit. and Speech	3
Math. 31, Integ. Calculus	4	Math. 32, Diff. Equations	4
Chem. 1, General	3	Chem. 2, General	3
Civil Engin. 25, Surveying	5	Civil Engin. 34, Applied Mech. (Statics)	3
Mech. Engin. 1, Drawing	2	Mech. Engin. 2, Drawing	2
Military 25	2	Military 26	2

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
An. Hus. 1, Agric. Survey	3	Econ. 25 or Psych. 26	3
Mech. Engin. 3, Descrpt. Geom.	2	Agron. 2, Soils	3
Mech. Engin. 61, Test. Materials	2	Mech. Engin. 68, Kinematics	3
Mech. Engin. 65, Heat Engin.	3	Elect. Eng. 62, Prin. of Elec. Eng.	4
Elect. Engin. 61, Principles of	4	Civ. Engin. 52, Applied Mech. (Kinematics)	
Civ. Engin. 51, Strength of Mat'l	4	Elective	3

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Psych. 26 or Econ. 25	3	Ag. Eng. 76, Mech. Farm Equip.	2
Ag. Engin. 71, Mech. Power	3	Ag. Eng. 78, Drainage & Recl.	3
Ag. Engin. 73, Farm Structures	4	Ag. Eng. 80, Food Process Eng.	3
Civ. Engin. 75, Fluid Mechanics	3	Elec. Engin. 90, Illumination	3
Electives	6	Civ. Eng. 90, Contracts, Specif. & Est'g.	3
		Electives	
Electives		Ag. Engin. 84, Ag. Eng. Problems	3
Pub. Health 61, Gen. & Com. Sanit.	3	Pub. Health 62, Gen. & Com. Sanit.	3
Ag. Eng. 83, Ag. Eng. Problems	3	Fores. 76, Wood Technology	3
Ag. Eng. 85, Rural Electrification	3	Econ. 58, Business Law	3
Mech. Engin. 83, Machine Design	3		
Acct. 25, Bus. Acct.	3		
For. 75, Mfg. & Dist. of For. Prod.	3		
Hist. 25, Am. Gov't.	3		
Geol. 50, Engin. Geology	3		

LIGHT BUILDING CONSTRUCTION

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Lit. & Speech	3	English 26, Lit. & Speech	3
Math. 31, Int. Calculus	4	Math. 32, Diff. Equations	4
Chem. 1, General	3	Chem. 2, General	3
Civil Eng. 27, Plane Surveying	2	Civ. E. 34, Appld. Mech. (Statics)	3
Mech. Engin. 27, Shop	3	Agr. Engin. 22, Shop	2
Military 25	2	Military 26	2

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Psych. 26, General	3	Econ. 25, General	3
Mech. Eng. 61, Testing of Mat'l.	2	Agr. Engin. 50, Ext. & Int. Finish	3
Civ. Eng. 51, Strength of Mat'l.	4	Fores. 76, Wood. Tech.	3
Fores. 85, Air Season'g & Kiln Drying	3	Electives*	
Elec. Eng. 90, Illumination	3		
Elective*			

*SUGGESTED ELECTIVES:

Mech. Engin. 65, Heat Engin.	3	Econ. 55, Econ. of Consumption	3
Land. Arch. 53, Garden Design	3	Civ. Eng. 70, Theory of Struct.	4
		Mech. Eng. 76, Refrig. & Air Cond.	3
		Agr. Engin. 80, Wood Process Engr.	3

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
An. Hus. 1, Agr. Survey	3	Civ. Eng. 90, Contract., Specif., Estmt'g.	3
Agr. Engin. 73, Farm Struc. Dsgn.	4	Acct. 26, Bus. Accounting	3
Acct. 25, Accounting	3	Econ. 58, Business Law	3
Electives*		Electives*	

*SUGGESTED ELECTIVES:

Fores. 75, Mfg. & Dist. Fores. Prod.	3	Mech. Eng. 86, Industrial Eng.	3
Agr. Eng. 83, Problems	3	Mech. Eng. 88, Time & Motion Study	3
Civ. Eng. 71, Struct. Design	3	Civ. Eng. 72, Adv. Struct. Theory	3
Ind. Adm. 83, Business Mgt.	3	Agr. Eng. 84, Problems	3
Civ. Eng. 75, Fluid Mech.	3		
Mech. Eng. 87, Indus. Mgt.	3		

CIVIL ENGINEERING

G. A. MARSTON, *Adviser*

The profession of civil engineering once included all engineering practice other than military. Even today it includes such branches as structures of all types, highways and railroads, hydraulics as it applies to river control and power development, irrigation and drainage, sanitary engineering including water supply and sewerage works, and the broad field of surveying and mapping. Civil engineers by the nature of their work find many opportunities for employment with governmental agencies. Those who go into construction must go wherever their projects take them, while those engaged in design, maintenance and operation are generally located in cities or towns.

The curriculum in civil engineering is designed to prepare the student for work in any of these fields. At the same time he is required to devote about one-fifth of his hours to the humanistic-social courses.

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Lit. & Speech	3	English 26, Lit. & Speech	3
Math. 31, Integ. Calculus	4	Math. 32, Diff. Equations	4
Chem. 1, General	3	Chem. 2, General	3
Mech. Engin. 3, Descrpt. Geom.	2	Civ. Engin. 26, Route Surveying	3
Civ. Engin. 25, Surveying	5	Civ. E. 34, Applied Mech. (Statics)	3
Military 25	2	Military 26	2

SUMMER (6 WEEKS)

Civ. E. 28, Prop. & Topog. Surv.	3	Civ. Eng. 30, Route Surveying Prac.	3

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Psych. 26 or Econ. 25	3	Econ. 25 or Psych. 26	3
Civ. Eng. 51, Strength of Mat'l.	4	Civ. Eng. 70, Theory of Structures	4
Civ. Eng. 55, Highway Engin.	3	Civ. E. 52, Applied Mech. (Kinetics)	3
Mech. Eng. 61, Testing Mat'l.	2	Civ. Engin. 80, Soil Mechanics	3
Elec. Engin. 63, Elements of	3	Mech. Engin. 59, Mat'l of Constr.	2
Geol. 50, Engin. Geol.	3	Civ. Engin. 76, Fluid Mechanics	4

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Civ. Eng. 71, Structural Design	3	Civ. Eng. 72, Adv. Struct. Theory	3
Civ. Eng. 73, Concrete & Masonry	4	Civ. Eng. 78, Sanitary Engin.	3
Civ. Eng. 77, Water Supply	4	Civ. Eng. 90, Contracts, Specif. & Est.	3
Civ. Eng. 81, Foundations	2	Civ. Eng. 92, Professional Sem.	1
English 83, Technical Writing	2	Pub. Health 66, Community Sanit.	2
Non-Tech. Elective (Hist. 25, Am. Gov't. recommended)	3	Technical Elective*	3
		Non-Tech. Elective (Econ. 58, Bus. Law, recommended)	3

*Econ. 76, Prin. of Transportation
*Mech. Eng. 65, Heat Engin.
*Civ. Eng. 56, Transportation Engin.
*Civ. Engin. 94, Advanced Surveying
*Civ. Engin, 96, Hydraulic Engin.
*Bact. 54, Fundamentals of Water & Sewerage Bact.

ELECTRICAL ENGINEERING

ROBERT R. BROWN, *Adviser*

Electrical engineering is that branch of the profession covering the engineering applications of electricity. The first commercial application was street lighting some sixty years ago. The electric lamp was followed in a few years by the electric motor, transformers, telegraph, telephone, radio, electronic devices, etc., so that today electrical engineering reaches into every profession, every walk of life. It has become so broad, so extensive in its applications, that it is considered to be divided into various fields such as power, communications, illumination, electronics, control engineering, and others, each of these having specialized sub-divisions.

The undergraduate curriculum is designed to prepare the student for work in any of these fields, and to serve as a basis for specialization in any of them, either in advanced courses or in the field. At the same time, about one-fifth of the student's work is devoted to the humanistic-social courses so that he may have an understanding of the broader aspects of engineering and its relation to other fields of human endeavor.

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Lit. & Speech	3	English 26, Lit. & Speech	3
Math. 31, Integ. Calculus	4	Math. 32, Diff. Equations	4
Chem. 1, General	3	Chem. 2, General	3
Mech. Eng. 3, Descrpt. Geom.	2	Civ. E. 34, Applied Mech. (Statics)	3
Mech. Engin. 23, Shop.	3	Elec. Engin. 40, Fundamentals	3
Civ. Eng. 27, Plane Surveying	2	Military 26	2
Military 25	2		

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Psych. 26, or Econ. 25	3	Econ. 25, or Psych. 26	3
Elec. Eng. 51, A.C. Circuits	3	Elec. Eng. 54, A.C. Machinery	4
Elec. Eng. 53, D.C. Machinery	3	Elec. Eng. 74, Electronics	3
Elec. E. 57, Diff. Eq. & Vect. Anly.	2	Mech. Eng. 61, Testing of Mat'ls.	2
Mech. Eng. 65, Heat Engin.	3	Mech. Eng. 66, Heat Engin.	3
Civ. Eng. 53, Strength of Mat'l.	3	Civ. E. 52, Applied Mech. (Kinetics)	3
English 83, Technical Writing	2		

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Elec. Eng. 75, Applied Electronics	3	Elec. E. 78, Elec. Transients	3
Elec. Eng. 77, Elec. Transmission	3	Mech. Eng. 86, Industrial Engin.	3
Elec. Eng. 83, A.C. Mach. Lab.	2	Elec. Eng. 92, Professional Sem.	1
Mech. Eng. 79, Mech. Eng. Lab.	2	Elec. E. 80, Communications or Elec. E. 86, Power Syst. Networks	4
Civ. Eng. 75, Fluid Mechanics	3	Technical Elective*	3
Elec. E. 79, Communications or Elec. E. 85, Power Applications	3	Non-Technical Elective (Econ. 58, Bus. Law recommended)	3
Non-Technical Elective (Hist. 25, Am. Gov't. recommended)	3		

*Elec. Eng. 84, Industrial Controls
*Elec. Eng. 88, Elec. Networks
*Elec. Eng. 90, Illumination
*Elec. Eng. 94, U.H.F. Techniques
*Elec. Eng. 96, Electromagnetic Fields

MECHANICAL ENGINEERING

MAURICE E. BATES, *Adviser*

Mechanical engineering is that branch of the profession which, broadly speaking, covers the fields of heat, power, design of machinery, industrial management and manufacturing problems.

Building upon the foundation laid by the departments of mathematics, physics, and chemistry, the department of mechanical engineering undertakes to show the student how fundamental physical laws apply to this field of the profession. The courses selected give the student thorough training in the basic principles so that particular applications can be mastered in professional practice. Therefore, no attempt is made to give highly specialized instruction.

It must be realized that the modern engineer lives in a time of rapid social and technological change. Only the man who has had a well-balanced cultural and technical program of study can adjust quickly enough to the needs of a continually changing social order. The following curricula emphasize the fundamentals of the four M's of engineering; materials, methods, men, and money, a knowledge of which is vital to the modern engineer.

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Lit. & Speech	3	English 26, Lit. & Speech	3
Math. 31, Integ. Calculus	4	Math. 32, Diff. Equations	4
Chem. 1, General	3	Chem. 2, General	3
Mech. Eng. 3, Descript. Geom.	2	Civ. Eng. 34, Appld. Mech. (Statics)	3
Mech. Eng. 27, Shop	3	Mech. Eng. 28, Machine Shop	3
Civ. Eng. 27, Surveying	2	Military 26	2
Military 25	2		

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Econ. 25 or Psych. 26	3	Psych. 26 or Econ. 25	3
Mech. Eng. 59, Mat'l. of Constr.	2	Mech. E. 72, Fundament. of Metallur.	2
Mech. Eng. 61, Testing of Mat'l.	2	Mech. Eng. 68, Kinematics	3
Mech. Eng. 63, Eng. Thermodynamics	4	Mech. Eng. 64, Eng. Thermodynamics	4
Elec. E. 61, Principles	4	Elec. Eng. 62, Principles	4
Civ. Eng. 51, Strength of Mat'l.	4	Civ. Eng. 52, Appld. Mech. (Kinetics)	3

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Mech. Eng. 75, Power Plants	3	Mech. E. 76, Refrig. & Air Cond.	3
Mech. E. 77, Internal Combust. E.	3	Mech. Eng. 80, Mech. Eng. Lab.	2
Mech. Eng. 79, Mech. Eng. Lab.	2	Mech. Eng. 84, Dynamics of Machines	3
Mech. Eng. 83, Machine Design	3	Mech. Eng. 86, Industrial Engin.	3
Civ. Eng. 76, Fluid Mechanics	4	Mech. Eng. 92, Professional Sem.	1
Non-Technical Elect. (Hist. 25, Am. Govt. recommended)	3	Elec. Eng. 65, Industrial Elect.	2
		Non-Tech. Elect. (Econ. 58, Bus. Law or Psych. 86, Industrial recomm'd)	3

INDUSTRIAL ENGINEERING

J. D. SWENSON, *Adviser*

Within the department of mechanical engineering there is provided an optional curriculum in industrial engineering. A constant demand exists for young men trained in the fundamentals of mechanical engineering and at the same time versed in the economic and special aspects of modern industry.

The curriculum is intended to prepare the graduate for entrance into such industrial fields as management of labor, the planning and financing of production, the reduction of manufacturing costs and similar problems encountered in an industrial enterprise. The first two years of the curriculum are the same as for mechanical engineering. In the junior and senior years the student pursues basic engineering courses and also several economics, business administration, and psychology studies.

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Econ. 25, or Psych. 26	3	Psych. 26 or Econ. 25	3
Mech. Eng. 65, Heat Engin.	3	Mech. Eng. 66, Heat Eng.	3
Civ. Eng. 53, Strength of Mat'l.	3	Civ. E. 52, Appld. Mech. (Kinetics)	3
Elec. Eng. 61, Prin. of Elec. Eng.	4	Elec. Eng. 62, Prin. of E. E.	4
Mech. Eng. 59, Mat'l. of Constr.	2	Econ. 58, Business Law	3
Ag. Ec. 79, Prin. & Method of Statis.	3	Ag. Ec. 80, Adv. Statistics	3

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Mech. Eng. 61, Testing of Mat'l.	2	Econ. 51, Business & Indust.	3
Mech. Eng. 79, Mech. Eng. Lab.	2	Mech. Eng. 88, Time & Motion St.	3
Mech. Eng. 83, Machine Design	3	Elec. Eng. 65, Indust. Elect.	2
Civ. Eng. 75, Fluid Mechancis	3	Econ. 54, Corporation Finance	3
Econ. 79, Labor Problems	3	Acct. 26, Bus. Acct.	3
Acct. 25, Bus. Acct.	3	Mech. Eng. 92, Professional Sem.	1
Elect. (Hist. 25, Am. Govt. or M. E. 87, Indust. Mgt. recommended)	3	Non-Tech. Elect. (Psych. 86, Industrial recommended)	3

SCHOOL OF HOME ECONOMICS

HELEN S. MITCHELL, *Dean*

Students majoring in Home Economics are fitted for a variety of professions as well as for successful home making in the broadest sense. The curricula provide for a general education including specialization in a chosen field of interest. Students with well-rounded personalities and some scientific inclination will find opportunities for intellectual growth and professional service in fields where well-trained women are in great demand. National professional organizations in this field set standards for which students may qualify in this program.

The four-year course in Home Economics includes a study of the physical, biological, and social sciences; English, History, and Art; and opportunities for electives in other fields. In the spring of her freshman year, each student is assigned to a member of the Home Economics faculty who will serve as a friendly personal adviser and help the student decide upon her choice of electives in the subsequent years.

UNIFORM FRESHMAN AND SOPHOMORE YEARS

All students in Home Economics will take the following uniform program of studies during the first two years:

FRESHMAN YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Chemistry 1, General	3	Chemistry 2, General	3
Zoology 1 or Mathematics 7	3	Mathematics 12	3
Language or History	3	Language or Zoology 1 or History 6	3
Home Economics 1, Introduction	3	Home Ec. 2, Clothing Selection and Constr.	3
Physical Education 7	2	Physical Education 8	2
		Hygiene	1

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Economics 25, Elements	3	Psychology 26, General	3
Chemistry 31, Organic	3	Chem. 32 or Physiol. 32	3
Home Ec. 31, Applied Art	3	Home Ec. 30, Foods	3
Elective	3	Elective	3
Physical Education 27	2	Physical Education 28	2
Electives:		*Electives:*	
*Bacteriology 31, 31A, Intro.	4	*Physiology 32	3
Drawing 31, Elem. Design	3	History 32, English	3
History 31, English	3	Home Ec. 26, Textiles	3
Language	3	Language	3

* Required of those wishing to qualify for American Dietetics Association membership.

JUNIOR-SENIOR CURRICULA IN HOME ECONOMICS

A student may specialize in one of several fields of Home Economics during the junior and senior years. In consultation with her faculty adviser, each student will choose courses directly related to her objective. To qualify for a B.S. degree in Home Economics a student must have a minimum of 15 credits and not more than 30 credits in Home Economics subjects during the junior and senior years. The following curricula are suggestive. Those interested in other types of professional work or commercial positions of any other type should consult with advisers about desirable electives. For students not interested in professional work, a more liberal choice of electives is possible.

Curriculum in Child Development and Family Life Education. Students interested in child development, nursery school work and social service work should choose this curriculum including subjects marked (C&F). The College is affiliated with the Merrill-Palmer School in Detroit which specializes in education for home and family life. One or two outstanding students may be selected each year to study there for one semester of the senior year.

Curriculum in Foods and Nutrition and Institution Management. This curriculum prepares for the professional fields of hospital or administrative dietitian or nutritionist and meets the requirements of courses approved by the American Dietetics Association. This curriculum is also advised for those interested in Home Service and commercial demonstrating related to foods. Courses marked (F&N) should be included in this curriculum.

Curriculum in Home Economics Education. Students planning to teach may anticipate positions in junior and senior high schools and private schools. In addition to courses required of all Home Economics students, those marked (Ed) are recommended for those planning for any form of teaching. Electives should be chosen to prepare a student to be able to teach one other subject than Home Economics, a demand frequently made of young teachers. Students contemplating secondary school teaching should register with the department of Education.

Curriculum in Extension Work. This curriculum prepares students for such positions as home demonstration agents, 4-H Club leaders, or other positions in adult education. Apprentice training between junior and senior years is recommended. Courses marked (Ext) should be included in this curriculum.

Curriculum in Textiles, Clothing, and Related Art. This curriculum is of interest to students who may wish to use clothing and related art in a general and aesthetic sense for their personal and family development. Students with ability and professional interest in the artistic and technical aspects of textiles, clothing, and related art are encouraged to go further in this field. Courses marked (T&C) should be included in this curriculum.

PRE-RESEARCH MAJOR

A new curriculum planned for the students who wish to prepare for graduate work in nutrition or biochemical research. Some of the usual required courses in Home Economics are waived in order to allow time for more of the basic sciences. This major should be attractive to scientifically-minded young women who wish to focus their interests in a field where well-trained women are in demand.

JUNIOR YEAR

1st Semester	*Credits*
*Home Economics 51, Foods	3
Home Ec. 61, Clothing Select. and Constr. (Ed) (Ext) (T&C)	3
*Home Ec. 75, Ec. of Household	3
Education (F&N) (Ed) (Ext)	3
Architecture 51, House Planning (Ext) (T&C)	3
Chem. 79, Physiological (F&N)	4
Journalism 85 (Ext)	3
Electives	

2nd Semester	*Credits*
Home Ec. 26, Textiles (Ed) (Ext) (T&C)	3
*Home Ec. 52, Nutrition	3
Home Ec. 62, Home Furnish (Ext) (T&C)	3
Home Ec. 86, Child Development (C&F) (Ed) (Ext)	3
Education (Ed)	3
Home Ec. 60, Household Equipment (Ed) (Ext)	3
Floriculture 58 (Ext) (T&C)	3
Food Tech. 75, Food Preserv. (F&N) (Ed)	3
Sociology 52, Rural (Ext)	3
Electives	

SENIOR YEAR

1st Semester	*Credits*
*Home Ec. 77, Home Mtg. Pract. (either semester)	3
‡Home Ec. 81, Meth. of Teaching Home Ec. (Ed) (Ext)	3
Home Economics 87, Adv. Clothing Problems (T&C)	3
Home Ec. 89, Diet Therapy (F&N)	3
Home Ec. 91, Institutional Foods (F&N)	3
Art 75, Appreciation (Ext) (T&C)	3
Economics 81, Prin. of Business Acct. (F&N)	3
English 81, Creative Writing (Ext)	3
Speech 91 or 92 (Ext)	3
Electives	

2nd Semester	*Credits*
†Home Ec. 80, Family Life (C&F) (Ext)	3
‡Home Ec. 83, Student Teaching in Home Ec. (either semester) (Ed) (Ext)	3
Home Ec. 84, Spec. Probs. (C&F) (T&C)	3
Home Economics 90, Foods & Nutrition Seminar (F&N)	1
Home Economics 92, Inst. Foods and Management (F&N)	3
Art 78, Renaissance and Mod. (T&C)	3
Electives	

* Required of all Home Economics Students.
‡ Acceptable as credits in Education.
† Acceptable as Sociology for American Dietetics Association.

(C&F) Recommended for Child Development and Family Life Curriculum
(F&N) Recommended for Foods and Nutrition and Institution Management curriculum
(Ed) Recommended for Home Economics Education curriculum
(Ext) Recommended for Home Economics Extension curriculum
(T&C) Recommended for Textile, Clothing, and Related Art curriculum

Other suggested electives for juniors and seniors:

- Animal Husbandry 91
- Landscape Architecture 84
- Chemistry 29
- Economic 53, 55
- Education 51, 80
- Food Technology 52
- History
- Journalism 85
- Language
- Literature
- Music 51, 52
- Psychology 55 (Ed. credit)
- Zoology 25

SCHOOL OF HORTICULTURE

C. L. Thayer, *Acting Dean*

The School of Horticulture offers instruction in the growing and marketing of flowers, fruits, vegetables, and ornamental shrubs; in the breeding and improvement of plants; in the active management and conservation of forests and wildlife; in the design, planting and care of ornamental plantings, and in the processing and technology of food products.

In this broad field of Horticulture trained leadership is needed as never before. On the land we must have more well-informed men with the vision to fit developments in their business into a rapidly changing national economy. In the research laboratory we must have more men and women fully competent and eager to push ahead of known procedures and blaze the way to a more effective Horticulture geared to better living. In the classrooms of colleges and secondary schools we need more teachers who can orient their material to the economic and social development of the nation and can also bring to bear on current problems all that fundamental science has to contribute. Competent men and women are needed as never before to meet problems of great complexity which call for immediate solution.

FACILITIES FOR INSTRUCTION

The School has available the following facilities for instruction:

Greenhouses.—Splendid laboratories for propagating, growing, and studying a wide variety of flowers and vegetables are provided by nearly 20,000 square feet of greenhouse space adjacent to classrooms. The Durfee Plant Houses, in addition, contain a valuable collection of plants which illustrate chiefly the flora of tropical and subtropical regions. These are supplemented by about 5,000 square feet of hotbeds and coldframes.

Gardens.—Several acres of land are used for the culture of vegetables in great variety, florists' crops, garden flowers, bedding plants, and herbaceous perennials. A nursery is maintained for instruction in the propagation of woody ornamental plants and an excellent collection of plants used in landscape work is available in gardens and campus plantings.

Orchards.—Several hundred varieties of tree and small fruits are maintained in well equipped plantations near at hand. A fruit tree nursery offers the opportunity to become familiar with problems of propagation.

Forests.—The Mt. Toby forest of 755 acres and smaller tracts of woodland near the campus afford excellent facilities for field work in Forestry and Wildlife Management. A State Forest Nursery on the campus produces each year hundreds of thousands of seedlings of several species which are used for forest planting throughout the State.

Laboratories.—In addition to the facilities listed above a number of laboratories and drafting rooms are maintained by the departments of instruction. Of particular interest are the laboratories devoted to teaching and research in the manufacture, preservation, and examination of food products. Facilities are available for the use of small animals in nutritional work related to the technology of foods. The laboratory is equipped for food freezing and dehydration, and a modern cold storage warehouse is available for special studies.

CURRICULA IN HORTICULTURE

The School includes the Departments of Floriculture, Food Technology, Forestry and Wildlife Management, Landscape Architecture, Olericulture, and Pomology.

Each departmental curriculum is designed to give the student a thorough training in the Sciences and Arts involved most closely in the solution of problems in the field of that department and in the broader field of life in these times. Each curriculum provides a well considered foundation from which increasing effectiveness may be attained with further study and experience. Electives in the junior and senior years provide an opportunity for the pursuit of special interests or for the correction of deficiencies which might later be a handicap.

The program of studies for the first two years is fairly uniform for all curricula and is outlined as follows:

FRESHMAN YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Botany 1 or Zoology 1	3	Botany 1 or Zoology 1	3
[1]Chemistry 1, General	3	Chemistry 2, General	3
Mathematics 7	3	Mathematics 8 or 10	3
[3]Hort. 1, Plant Propagation	3	[3]Agronomy 2, Soils	3
Military 1 (men)	3	Military 2 (men)	2
Physical Education 3 (men)	1	Physical Education 4 (men)	1
Physical Education 7 (women)	2	Physical Education 8 (women)	2
		Hygiene (women)	1

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Economics 25 or Psychology 26	3	Psychology 26 or Economics 25	3
A Science	3	A Science	3
Electives	6	Electives	6
Military 25 (men)	2	Military 26 (men)	2
Physical Education 27 (women)	2	Physical Education 28 (women)	2

[1] Majors in Landscape Architecture and Ornamental Horticulture may substitute a Foreign Language or History 5 and 6 for the year course in Chemistry.

[2] Students who expect to take Calculus in the sophomore year should elect Mathematics 7 and 10. Candidates for the Bachelor of Vocational Agriculture degree take history in place of Mathematics.

[3] Food Technology majors are urged to take and Wildlife Management majors may take Engineering 1 (Drawing) in place of Horticulture 1 or a full year of a modern language in place of Horticulture 1 and Agronomy 2. Those who do not elect the modern language will take Agronomy 2.

In making all elections students should be guided by the departmental recommendations for the sophomore year to be found in the following description of junior-senior curricula in Horticulture.

JUNIOR-SENIOR CURRICULA IN HORTICULTURE

Juniors and seniors in Horticulture will elect their major work in one of the following curricula:

FLORICULTURE

C. L. Thayer, *Adviser*

The courses in Floriculture provide for a comprehensive and detailed study of the practices and principles involved in the production, marketing and uses of cut flowers, flowering and foliage plants grown outdoors and under glass. Opportunities available to graduates may include: positions in various fields of commercial floriculture, such as production, wholesale marketing and retailing; employment in nurseries, on private estates and in conservatories; positions in the professional field, including graduate study, teaching in colleges and secondary schools, research and extension work under state, Federal, or other supervision.

It is advantageous for the student to determine, as soon as possible, the type of position for which he wishes to fit himself since the choice of elective courses will depend largely on his decision.

As sophomores majors are advised to take Chemistry 29 and 30 for their Sciences. First semester electives should be Botany 25 and Olericulture 25; second semester Entomology 26 and Floriculture 26.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Flori. 51, Greenhouse Mgt.	3	Flori. 52, Flower Arrangement	3
Flori, 79, Conservatory Plants or	2	Flori. 54, Greenhouse Const.	3
Flori. 81, Herb. Gardens and borders	3	Plant Breeding 52, Genetics	3
Plant Breeding 51, Genetics	3	Botany 51, Plant Pathology	3
Entomology 51, Pests of Special Crops	3	Electives	6
Electives	5-6		

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Flori. 75, Commercial	3	Flori. 76, Commercial	3
Flori. 79 or	2	Flori. 82, Seminar	3
Flori. 81	3	Botany 68, Physiology	3
Botany 67, Physiology	3	Electives	8
Electives	8-9		

FOOD TECHNOLOGY

C. R. Fellers, *Adviser*

The curriculum in Food Technology provides scientific and applied training in the principles concerned with the processing, preservation, and packaging of foods and food products. Both home and commercial methods of food preservation are considered. Practical work includes canning, freezing, dehydration, and fermentation and salting. Methods of manufacture of jams, jellies, fruit juices, and beverages are a part of course work. An effort is made to apply the student's background in Chemistry and Bacteriology to Food Technology problems and food analysis.

The curriculum gives the student a broad science background with specialized knowledge in food processing and preservation. Special courses are offered for Home Economics majors who plan to teach or do extension work in foods. Major fields open to graduates include: (1) commercial work in cannery, freezer and other plant operation; (2) control and analytical work related to food products; (3) government food inspection and grading; (4) technological work in government and industry.

Ambitious students are encouraged to acquire the background which will enable them to pursue graduate work and research in the application of scientific knowledge to the technology of foods.

The selection of supporting courses depends upon the objective of the student, which should be determined as early as possible.

Food Technology majors should take Physics 25 and 26 and Chemistry 29 and 30 in the sophomore year; also, if possible, Bacteriology 31 and 31A. Students planning to take Physical Chemistry should complete, Mathematics 29 and 30.

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Food Tech. 51, Introductory	3	Food Tech. 52, Food Prod.	3
Chemistry 51, Organic	4	Chemistry 52, Organic	4
Bacteriology 51	3	Bacteriology 82, Applied	3
Electives		Agr. Engin. 80, Food Engin.	3
		Electives	

SUGGESTED ELECTIVES

Public Health 61	3	Public Health 62	3
A Foreign Language	3	A Foreign Language	3
Engineering 1	3	Home Ec. 52, Dietetics	3
Engineering 63	3	Olericulture 74	3
Pomology 77	3	Botany 66	3
Dairy Industry 77	4	Dairy Industry 52 or 78	4
Dairy Industry 75	3	Home Ec. 30	3
Animal Husbandry 53	3	Home Ec. 54	2
Poultry Husbandry 75	2	Food Tech. 95, Research Methods	2
Olericulture 73	3		

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Food Tech. 61, Industrial Technology	3	Food Tech. 62, Industrial Technology	3
Food Tech. 71, Food Science Literature	2	Food. Tech. 72, Food Science Literature	2
Food Tech. 91, Exam. of Food Prod.	3	Food Tech. 92, Exam. of Food Prod.	3
Chemistry 79, Physiological or	4	Food. Tech. 82, Confections and Cereal Products or	2
Chemistry 65, Physical	3	Chemistry 66, Physical	3
Electives		Electives	

FORESTRY AND WILDLIFE MANAGEMENT

This department offers two curricula, one in Forestry and one in Wildlife Management.

FORESTRY

The curriculum in forestry includes a series of courses in technical forestry sufficiently comprehensive to meet the requirements for general undergraduate preparation in this professional field. With its supporting and cognate courses it substantially meets the requirements for admission to the Junior Forester examination. Should the student upon receiving the Bachelor's Degree follow the highly desirable procedure of continuing his education at a graduate school of forestry, he should receive credit for a considerable proportion of the technical courses accomplished here. The additional time required to obtain the Master of Forestry Degree would normally be one year.

Should the student elect to pursue a pre-professional curriculum in forestry, giving less time to technical forestry courses and more to the basic sciences and cultural subjects, the time required to obtain the Master of Forestry Degree at a graduate school after graduation here will be two years.

Most of the forestry courses are open to students other than those concentrating in forestry, but these courses should be elected only after consultation with the student's major adviser, and the instructor teaching the course.

Sophomore majors in forestry take Economics 25 and either required History or Psychology 26 the first semester. Physics 25, Botany 25 and Civil Engineering 27 should be elected first semester; Botany 28, Physics 26, Forestry 26, and Entomology 26 second semester.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Forestry 53, Silvics	3	Forestry 56, Prin. of Silviculture	3
Forestry 55, Mensuration	3	Forestry 54, Forest Soils	3
Forestry 59, Protection	3	Forestry 66, Wood Anatomy & Indent.	3
Geology 27, Physical	3	Wildlife Mgt. 72, Forest-Animal Relationships	3
Plant Pathology 51	3	Entomology 72, Forest Ent.	3

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Forestry 81, Regional Silvicul.	3	Forestry 82, Seeding and Planting	3
Forestry 57, Forest Policy & Econ.	3	Forestry 80, Forest Mgt.	3
Forestry 75, Forest Products	3	Forestry 78, Harvesting	3
Electives*		Electives*	

* Two per semester are to be selected from the following:

Botany 67, 68
Plant Breeding 51, 52
Agronomy 57
English 81, 83
Land. Arch. 25
Geology 28, 51, 52
Agric. Econ. 79
Accounting 25
Language
History
Psychology
Chemistry
Mathematics
Forestry 76, 85

WILDLIFE MANAGEMENT

R. E. Trippensee, *Adviser*

The courses in wildlife management are designed both for those who field. Courses in wildlife conservation and management make excellent supporting work for students of public administration, economics, zoology, entomology, and forestry. Particular emphasis is given to the relation of wild animals, their ecology and use on both forest and farm lands,

Students who expect to continue studies for advanced degrees are eligible for graduate work either in the Graduate School at the University of Massachusetts or in other institutions offering graduate work in this field.

Wildlife management is both an applied science and an art, and is concerned with the production and control of wild-animals crops on both wild and cultivated lands. In order to manage land, a knowledge of the origin and management of land is necessary. Thus, work in geology, soils, forestry, and agriculture is included in the training. Fields of specialization include fisheries management, game management, fur production, and control of injurious animals. Related fields include soil conservation, conservation education, and industrial biology.

Studies in wildlife management will be closely correlated with the work carried on by the State Department of Conservation and the U. S. Fish and Wildlife Service. During the junior and senior years trips will be planned to study the work at the John C. Phillips Wildlife Laboratory at Upton and to attend the New England Game Conference at Boston. Numerous other wildlife projects will also be visited.

Sophomores should elect four courses from the following: Wildlife Management 27, Forestry 26, Botany 25, Bacteriology 31 and 31A, Zoology 25, Chemistry 29, Geology 27, Mathematics 29, Physics 25 and 26, Entomology 26, Physiology 32.

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Wildlife Management 71	3	Wildlife Management 70	3
Forestry 55	3	Forestry 56	3
Electives*		Electives*	

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Widlife Management 73	3	Wildlife Management 74	3
Electives*		Electives*	

* Electives may include the following:

Civil Engineering 27
Agron. 57
Forestry 53, 80
History
Animal Husbandry 91
Plant Breeding 51
Physiology 75, 76
Chemistry 30, 51, 52
Zoology 80, 82, 86
Language
Economics 28, 62
Botany 26, 81
English 81, 84
Entomology 79
Accounting 25
Agricultural Economics 79
Bacteriology 64
Vet. Science 88
Land. Arch. 25
Education
Psychology

LANDSCAPE ARCHITECTURE

R. H. OTTO, *Adviser*

Instruction in this department has two objectives: first a contribution to general education; second a preparation of students for the professional practice of Landscape Architecture. The department offers optional curricula, (1) Professional Landscape Architecture, and (2) Ornamental Horticulture.

LANDSCAPE ARCHITECTURE

Students following this professional curriculum are prepared to take up work in Landscape Architecture, which leads through field experience or post-graduate study to permanent establishment in the profession.

Sophomores in the first semester elect either Botany 25 or Geology 27 for their Science and take Landscape Arch. 25 (Drawing) and Civil Engineering 27 as electives. In the second semester the Science is either Entomology 26 or Geology 28 and the electives Landscape Arch. 26 (Drafting) and Horticulture 26 (Plant Materials).

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Landscape Arch. 51, Topography	3	Landscape Arch. 52, Elements of Landscape Arch.	3
Landscape Arch. 53, Garden Design	3	Landscape Arch. 54, General Design	3
Hort. 51, Plant Materials	3	Hort. 52, Planting Design	3
Landscape Arch. 79, Construction & Maintenance alternate with Art 83	3	Electives	6
Elective	3		

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Landscape Arch. 81, Advanced Design	3	Landscape Arch. 76, Civic Art	3
Art 75, Art Appreciation	3	Landscape Arch. 83, Advanced Design	3
Art 77, History of Art	3	Art 78, History of Art	3
Landscape Arch. 83, alternate with Landscape Arch. 79	3	Landscape Arch. 80, History and Lit. of Landscape Arch.	2
Elective	3	Electives	4

Suggested Electives for Junior and Senior Years

Agronomy 53, 56, Agrostology
Landscape Arch. 84, Sketching
Botany 67, 68, Plant Physiology
Botany 81, Plant Ecology
Architecture 51, House Planning
English 84, Library Research
Floriculture 81, Herbaceous Borders

ORNAMENTAL HORTICULTURE

The curriculum in Ornamental Horticulture is suggested for those preferring to follow the horticultural phase of Landscape including (1) nursery work; (2) planting; and (3) maintenance of landscaped areas, such as parks and semi-public institution grounds.

Sophomores in this major will take Botany 25, Civil Engineering 27, Landscape Arch. 25 in the first semester; Entomology 26, Floriculture 26, and Horticulture 26 in the second.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Hort. 51, Plant Materials	3	Hort 52, Planting Design	3
Landscape Arch. 51, Topography	3	Landscape Arch. 52, Construction details	3
Agronomy 53, Turf Grasses	3	Pomology 26, Small Fruits	3
Landscape Arch. 79, Construction & Maintenance alternate with Botany 81	3	Agronomy 56, Turf Mgt.	3
Elective	3	Elective	3

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Flori 81, Herbaceous Borders	3	Entomology 72, Shade Tree Insects	3
Landscape Arch. 53, Garden Design	3	Pomology 56, Spraying	3
Plant Breeding 51, Genetics	3	Plant Breeding 52, Advanced	3
Forestry 55, Mgt. of Woodlands	3	Botany 51, Plant Pathology	3
Botany 81, Plant Ecology	3	Elective	4
Alternate with Landscape Arch. 79			

OLERICULTURE

G. B. Snyder, *Adviser*

The courses in Olericulture offer a comprehensive training in the scientific principles and commercial practices related to the culture and marketing of vegetable crops. The studies and training involved are set up to prepare graduates to undertake work in the following fields: (1) practical work in operating commercial market garden or truck farms or greenhouse establishments, (2) teaching Olericulture and related subjects in college, secondary or high schools, (3) extension work in Horticulture and Agriculture, (4) research studies with state, Federal, or private agencies, (5) state, Federal, or private inspection service agencies, and (6) the wholesale and retail marketing of vegetables and other perishable commodities.

The department of Olericulture has facilities in greenhouses, plant houses, hot beds, machinery and equipment used in production and marketing procedures as well as land to provide the student ample opportunity to become acquainted with modern techniques and practices used in handling vegetable crops. Nearby truck farms, wholesale and retail market outlets, variety trial plots of seed companies and inspection agencies are used to demonstrate laboratory and classroom points of discussion.

The rather broad objectives of the training mean that the selection of supporting courses depends upon the specific field in which the student wishes to engage on graduation. This objective should, therefore, be determined as early as possible during the sophomore year.

Majors in Olericulture should take the following courses during the first semester of the sophomore year: Chemistry 29, Botany 25, and Olericulture 25. In the second semester they should include Chemistry 30, Entomology 26, and Pomology 26.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Oleri. 51, Nutrient Requirements	3	Oleri. 52, Environment and Plant Culture	3
Plant Breeding 51, Genetics	3	Oleri. 54, Greenhouse Crops	3
Botany 51, Plant Pathology	3	Botany 68, Plant Physiology	3
Botany 67, Plant Physiology	3	Electives	6-8
Electives	5		

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Oleri. 73, Marketing Practices	3	Oleri. 74, Merchandising of Perishables	3
Oleri. 75, Systematic	3	Oleri. 78, Commercial	3
Oleri. 81, Seminar	1	Oleri. 82, Seminar	1
Entomology 51, Pests of Special Crops	3	Electives	10
Electives	7	POMOLOGY	

POMOLOGY

R. A. Van Meter, *Adviser*

The Pomology courses provide a comprehensive training in the scientific and commercial principles concerned in the growing and marketing of apples, pears, peaches, plums, cherries, and small fruits. Major fields open to graduates include: (1) practical work in connection with the operation of fruit farms; (2) teaching in college, high school, or secondary schools of agriculture; (3) extension work in county, state, or nation; (4) research work with state, federal, or private connections; and (5) commercial work in connection with the manufacture and sale of such supplies as machinery, packages, and spraying and dusting materials. Certain supporting courses are required and their selection depends upon the objective of the student. That objective should, therefore, be determined as early as possible.

First semester sophomores are advised to elect Botany 25, Chemistry 29, and Olericulture 25. In the second semester they should take Chemistry 30, Entomology 26, and Pomology 26.

The selection of junior-senior electives should be undertaken with the help of the departmental adviser. They will depend for the most part on the interests and objectives of the student and his class record to date. The student who wishes to do college teaching, extension work, or research is advised to secure a broad foundation in Science and Liberal Arts, and to plan to enter a graduate school sooner or later. The student whose objective is growing fruit or teaching in secondary school may need to broaden his training in Horticulture and Agriculture and, again, will need all the Science and Liberal Arts that can be included in the program.

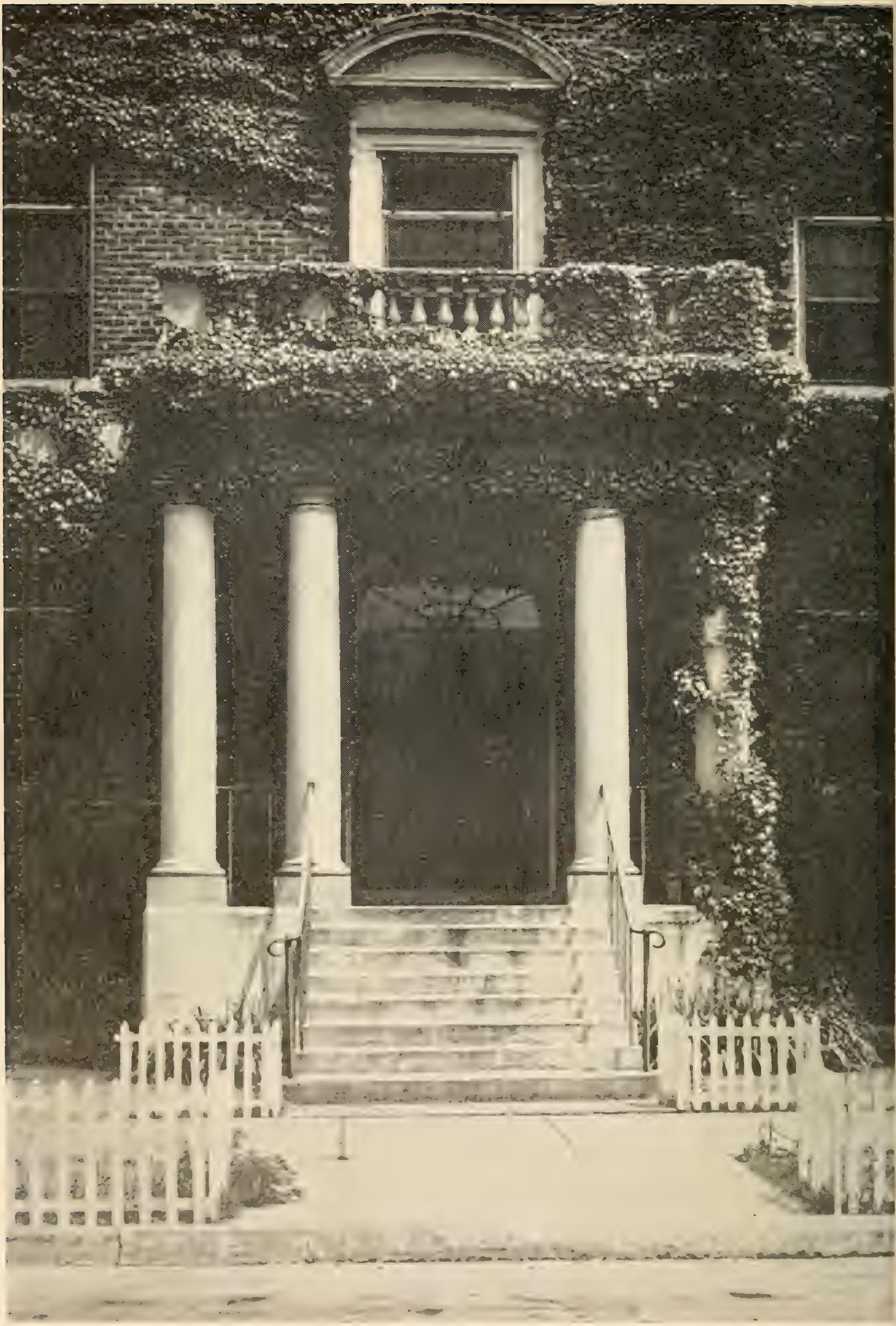
JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Pomology 53, General	3	Pomology 56, Spraying	3
Pomology 75, Systematic or	4	Botany 68, Physiology	3
Pomology 77, Commercial	3	Electives	
Botany 51, Plant Pathology	3		
Botany 67, Physiology	3		
Electives			

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Pomology 81, Advanced	3	Pomology 82, Advanced	3
Pomology 75, Systematic or	4	Pomology 84, Seminar	1
Pomology 77, Commercial	3	Electives	
Pomology 83, Seminar	1		
Plant Breeding 51, Genetics	3		
Electives			

Old Chapel, Liberal Arts Center at Amherst



Suffolk House Entrance at Devens

SCHOOL OF LIBERAL ARTS

A. A. MACKIMMIE, *Dean*

The School of Liberal Arts comprises the departments of English, German, Romance Languages, Economics and Political Science, Business Administration, History and Sociology, Psychology and Fine Arts. It offers a broad liberal program of studies aimed at giving the student a general cultural education in addition to professional training in certain fields. It also offers required and elective courses for students in other divisions.

Students who satisfy the Liberal Arts requirements of the freshman and sophomore years and who as juniors and seniors complete the requirements for specialization in the several departments of the School (excepting Business Administration) qualify for the A. B. degree. However, students specializing in the departments of Psychology and Education may qualify for the B. S. degree by electing fifteen junior-senior credits in the Physical and Biological sciences. Students completing the course in Business Administration will receive the B.B.A. degree.

Those enrolled in this School are required to take fundamental courses in the Humanities, Mathematics, and the Physical, Biological, and Social Sciences in the first two years. As a junior and senior each student selects a major from one of the following: Economics, Political Science, Business Administration, Education, Psychology, History, Sociology, Social Work, English, French, Romance Languages, German and Fine Arts.

CURRICULA IN LIBERAL ARTS

The courses for the first two years are largely prescribed. Each student therefore follows a fairly uniform program of studies until he begins his specialization.

FRESHMAN YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Mathematics 7	3	Mathematics 8 or 10	3
Chemistry or Biology (Botany and Zoology)	3	Chemistry or Biology (Botany and Zoology)	3
Foreign Language*	3	Foreign Language*	3
History 5‡	3	History 6	3
Physical Educational 7 (women)	2	Physical Education 8 (women)	2
Military 1 (men)	3	Military 2 (men)	2
Physical Education 3 (men)	1	Physical Education 4 (men)	1
		Hygiene (women)	1

* Business Administration majors may elect Economics 49 (Economic Geography) and Economics 50 (Economic History of the United States) in place of the foreign language. If a foreign language is not elected the student is advised to take a second year of mathematics. If a foreign language is elected, the student is advised to take the equivalent of three years of college work in one language.

‡ Business Administration majors take History 25 (American Government) in place of History 5.

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
[1]Economics 25 or Psychology 26	3	Psychology 26 or Economics 25	3
Military 25 (men)	2	Military 26 (men)	2
Physical Education 27 (women)	2	Physical Education 28 (women)	2

One of the following Sciences each semester:

Bacteriology 31, 31A	4	Physiology 32	3
Botany 25	3	Botany 26	3
Chemistry 29	4	Chemistry 30	4
Chemistry 31	3	Chemistry 32	3
Geology 27	3	Geology 28	3
Mathematics 29	3	Mathematics 30	3
Physics 25	4	Physics 26	4
Zoology 25	3	Entomology 26	3

Two electives from the following each semester:

Accounting 25	3	Accounting 26	3
French 7, 29, or 31		French 8, 30, or 32	3
German 25	3	German 26	3
History 25	3	Economics 26	3
History 31	3	Economics 28	3
Spanish 1	3	Spanish 2	3
		History 32	3
		Psychology 28	3
		[2]Sociology 28	3

[1] If Economics is taken in the first semester, Psychology will be elected in the second and vice versa, except by Business Administration majors who will take both Economics and Psychology the first semester and one elective from either of the above groups each semester.

[2] Required of Business Administration majors.

JUNIOR-SENIOR CURRICULA IN LIBERAL ARTS

Major work is available in the following departments during the last two years.

BUSINESS ADMINISTRATION

Philip L. Gamble, *Acting Chairman*

The curricula in business administration are planned to provide the student with basic training necessary for vocations in business. General education is emphasized the first two years and specialized training is emphasized the last two years. Four differentiated curricula are offered in the fields of General Business, Accounting, Industrial Administration, and Marketing.

Majors in Business Administration will select one of the following curricula:

GENERAL BUSINESS

Philip L. Gamble, *Adviser*

This program is offered to meet the needs of those students whose interest is in general business rather than in some more specialized field. The program is designed to provide training in the social sciences, particularly economics, as well as in the applied fields of business administration. This training should fit a man for initial employment in the training courses of large corporations or for work in small businesses and for further study in graduate school of a more specialized nature.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ec. 53, Money, Banking & Credit	3	Business Law 70	3
Mktg. 53, Marketing & Mktg. Prob.	3	Ec. 56, Business Cycles	3
Ec. 79, Labor Problems	3	Ec. 76, Prin. of Transportation	3
Ag. Ec. 79, Prin. & Methods of Statistics	3	Ec. 80, Labor Legislation	3
Elective	3	Elective	3

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ec. —, Corporation Finance	3	Ec. 70, Monopolies	3
Ec. 73, Modern Econ. Theory	3	Ec. 78, Public Finance	3
Ind. Adm. 83, Business Mgt.	3	Professional Elective*	3
Professional Elective*	3	Electives	6
Elective	3		

* Professional electives are to be chosen from the following courses:

Mktg. 73, Advertising
Mktg. 54, Salesmanship & Sales Mgt.
Mktg. 52, Industrial Purchasing
Ind. Adm. 84, Personnel Admins.
Mech. Engin. 88, Time & Motion Study
Bus. Law 71, Legal Aspects of Econ. Transactions
Ec. 77, Econ. of International Trade
Ec. 92, Investments

ACCOUNTING

RICHARD M. COLWELL, *Adviser*

This curriculum is designed to train students to understand business operations from the viewpoint of income, costs, valuation, financial systems and policies, and the interpretation and execution thereof. In addition to providing a general business background, this curriculum is the foundation for advanced training in accountancy and financial management. The special positions of accountancy for which students can qualify are: auditors, certified public accountants, comptrollers, cost analysts, credit analysts, income-tax consultants, industrial accountants, public accountants, private accountants, system designers, and teachers of accountancy.

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ec. 51, Ec. of Bus. & Industry	3	Business Law 70	3
Ec. —, Money, Banking & Credit	3	Acctg. 72, Advanced Acctg.	3
Mktg. 53, Marketing & Mktg. Prob.	3	English 84, Expository Writing	3
Acctg. 71, Advanced Acctg.	3	Electives	6
Ag. Ec. 79, Prin. & Methods of Statistics	3		

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ec. —, Corporation Finance	3	Ec. 78, Public Finance	3
Ec. 73, Modern Ec. Theory	3	Ec. 92, Investments	3
Ind. Adm. 83, Business Mgt.	3	Acctg. 74, Acctg. Systems	3
Acct. 73, Cost Accounting	3	Acctg. 76, Auditing	3
Elective	3	Elective	3

INDUSTRIAL ADMINISTRATION

————, *Adviser*

Expanding American industry now offers to qualified students the opportunity to find satisfying careers in the various fields of industrial management, labor relations, corporate finance, or personnel management. The curriculum offered is designed to give the student specialized training in these fields and a detailed and comprehensive understanding of the problems of business enterprise.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Mktg. 53, Mktg. & Mktg. Prob.	3	Business Law 70	3
Ec. 79, Labor Problems	3	Acctg. 74, Acctg. Systems	3
Ind. Adm. 83, Business Mgt.	3	Ec. 80, Labor Legislation	3
Acctg. 73, Cost Accounting	3	Mktg. 52, Industrial Purchasing	3
Ag. Ec. 79, Prin. & Methods of Statistics	3	Mech. Engin. 28, Machine Shop	3

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ec. —, Money, Banking & Crdt.	3	Ec. 76, Prin. of Transportation	3
Ec. —, Corporation Finance	3	Mech. Engin. 88, Time & Motion Study	3
Ec. 73, Modern Ec. Theory	3	Psych. 86, Industrial	3
Ind. Adm. —, Personnel Adminis.	3	Ind. Adm. 84, Personnel Adminis.	3
Electives	6	Electives	3

MARKETING

Harold E. Hardy, *Adviser*

Major students in marketing prepare for a variety of opportunities in wholesale and retail enterprises, the selling activities of industry and advertising and auxiliary services to business. The curriculum offers general training in economic and business principles and specialized study of basic types of market operations.

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ec. —, Money, Banking & Crdt.	3	Mktg. 54, Sales Mgt. & Salesmanship	3
Mktg. 53, Mktg. & Mktg. Prob.	3	Mktg. 52, Industrial Purchasing	3
Ec. 79, Labor Problems	3	Business Law 70	3
Ag. Ec. 79, Prin. & Methods of Statistics	3	Ec. 76, Prin. of Transportation	3
Elective	3	Elective	3

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Ec. 55, Ec. of Consumption	3	Mktg. 72, Market Research	3
Ec. 73, Modern Ec. Theory	3	Mktg. 74, New England Markets	3
Mktg. 71, Retail Merchandising	3	Psych. 86, Industrial Psych.	3
Mktg. 73, Advertising	3	Professional Elective*	3
Elective	3	Elective	3

* Professional elective is to be chosen from the following courses:
Ec. 70, Monopolies
Ec. 78, Public Finance
Ec. Seminar, Social Control of Business

ECONOMICS

The department offers curricula in both Economics and Political Science.

ECONOMICS

P. L. Gamble, *Adviser*

In Economics the aims are twofold: (1) to give the student an understanding of economic theory and of the application of economics to the organization of society; (2) to provide students with the elementary training necessary for further study of economic and business problems.

The department recommends that a minimum of 24 hours of junior and senior work be taken within the department by every major, and, for some careers, the maximum of 30 hours of junior and senior credit. Students are urged to select courses in the Humanities, and especially in the allied fields of History, Philosophy, and Psychology, and Sociology. Those intending to major in Economics should elect Economics 26 in the sophomore year.

For the majors in the Economics department, there are offered courses which may be combined to serve as preparation toward a number of different careers. Among others, possible careers in the following fields are open:

Banking and Finance
Government Service
International Trade
Labor and Personnel Relations
Public Utilities
Social Security
Statistics
Transportation and Communication

All majors irrespective of the career selected are required to take the following courses: Economics 52, 73, 79, Accounting 25 and Agricultural Economics 79 or Mathematics 62.

POLITICAL SCIENCE

V. L. FERWERDA, *Adviser*

The work in Political Science aims to give the student an understanding of the principles of government and their application to the organization of society, and to provide him with elementary training necessary for positions in government service or further study on the graduate level. It thus may be considered either as pre-law or pre-professional work, in addition to its general cultural utility.

Majors in the field should elect History 25 and Political Science 28 in their sophomore year. In the junior and senior years a minimum of eight additional courses in government is recommended; these may be elected from the following: Political Science 61, 62, 63, 64, 65, 66, 67, 68, 93, 94, or History 52 or 53. In addition eight supporting courses in other social sciences are recommended; these may be chosen from the fields of history, economics, sociology, or psychology. The remaining junior-senior courses should be chosen from the fields of languages, literature, philosophy, art, or music.

EDUCATION

A. W. PURIS, *Adviser*

The Department of Education seeks to utilize the various training facilities of the University to prepare teachers and administrative officers for the secondary schools. Its work is based upon the assumption that the teacher or supervisory officer should have a broad education; that he should have considerable mastery of the subject field which he expects to teach; and that his training should be supplemented by professional education which should give a knowledge of the pupils to be taught, familiarity with the problems to be met, and new meaning to the techniques of instruction.

To facilitate the realization of its goals, the Department seeks the cooperation of other sections of the University, and to this end suggests that each student who expresses a desire to teach shall be a major in the subject to be taught but shall also become a *registrant* in the Department of Education as early as possible in his college career.

Teacher Training in the Arts and Sciences. For students majoring in English, History or Social Studies, Languages, Mathematics, Physical or Biological Sciences. The student should register in the Department of Education as early as possible in his freshman or sophomore year. To meet the minimum professional standards (16 credits) two plans are currently in operation.

The One-Semester Plan. Opportunity is afforded to a relatively small but select group of seniors each fall semester to complete most of their professional requirements in one semester. Selection in this group is based on scholarship (an average of 80 or more is desired), personality, and the recommendation of the major department. Class work and practice teaching are scheduled in alternate weeks of that semester in such a way as to insure seven full weeks of practice in neighboring schools. Participants in this plan are chosen early in the junior year but the registration of each candidate should be in the files of the Department early in the sophomore year if possible. This plan is strongly recommended by the Department and highly favored by superintendents, and the placement of students trained under this plan is, therefore, greatly facilitated. Students selected for this opportunity should register for Psychology 55 in their junior year and Education 90, 91, 92, 93 and 94 in the first semester of their senior year.

The Two-Year Plan. For students who desire to teach and who were not selected for the One-Semester Plan, or whose senior schedule in major work does not permit of that plan, a further opportunity is provided. Courses in the Department are available during the student's junior and senior years which will enable him to accumulate sufficient credits to meet the standards. Six courses should be undertaken as follows: In the junior year Psychology 55, Education 88; in the senior year Education 53, 83 and 85. Opportunity for a small amount of practice teaching is available under Education 85 if the student's schedule permits (Tuesday and Thursday should be free for this work). While this plan does not offer the continuity of instruction nor the coordination of theory and practice which characterize the One-Semester Plan, it has been considered adequate by many superintendents in the past so far as preliminary training for prospective teachers is concerned.

Teacher-Training in Agriculture. (Professor Oliver, adviser.) By a cooperative agreement with the State Division of Vocational Education, persons otherwise qualified may prepare to teach Vocational Agriculture by the satisfactory completion of Education 72, 73, and 75. Education 51 is also recommended. To insure a desirable range of preparation, students who contemplate vocational teaching should consult (early in the freshman year, if possible) Professor Oliver and the State Supervisor of Agricultural Teacher-Training. A vocational teacher-training certificate is awarded by the Vocational Division to those who fully qualify.

Teacher-Training in Home Economics. (Assistant Professor Merriam, adviser.) Students majoring in Home Economics who desire to teach in this field should also register with the Department of Education. These students normally will undertake at least four of the following: Psychology 55, Home Economics 81 and 83, Education 53, 80 and 83. Upon the recommendation of Assistant Professor Merriam especially qualified students may be admitted to the One-Semester Plan.

Teacher-Training in Physical Education. (Professor Gore, adviser.) Students majoring in Physical Education who desire also to teach an academic field should register early with the Department of Education. They should endeavor to schedule a minimum of eighteen hours in the academic field to be taught and should undertake also the following: Psychology 55, Physical Education 54, and Education 51, 83, 85 and 88.

ENGLISH

F. P. RAND, *Adviser*

The department of English offers courses in English composition and literature and in speech. Students majoring in this department must conform to the institutional and school requirements for freshman and sophomore years, and in choosing sopohomore electives should include two semesters of modern language and one semester of English history.

The courses in English are intended to enable students to express themselves effectively and to appreciate humanistic values and the ideals of English-speaking people throughout their history. They also offer an appropriate, and in some instances as adequate, classroom training for work in such fields as teaching, authorship and editing.

The student must earn 30 credits in elective courses in English. However, for six of these he may substitute elective courses in other languages or speech.

FINE ARTS

J. ROBERTSON, D.ALVIANI, *Advisers*

The department of fine arts is to a certain extent interdepartmental and interscholastic, including that work of various departments which is artistic in their contributed courses. For the present the aim of the department is to bring together art, music and other courses in self-expression until the growth of the work permits the development of several special departments. The work in art is basic in its approach to design, drawing and painting. The art appreciation courses are non-professional in scope but provide a better understanding of the arts, in history and quality. The courses in music furnish an understanding of the history and interpretation of music, provide basic professional theory and afford some opportunities for performance. In addition, the department has made arrangements with well-qualified private teachers to offer instruction, without course credit, in voice and instrumental music to individuals or class groups. Those available at present are:

Esther Strong Clapp, B.A.—voice
Ella Duchemin Nutter—voice
George Leland Nichols, B.A., Mus. B., Mus. M.—
  piano, organ
Maurice Freedman—violin, viola, ensemble

The student majoring in fine arts is required to elect not less than 28 nor more than 30 credits from among the courses listed below. At least 15 credits must be from Group A or from Group B, and the student's adviser is assigned on this basis.

A	B	C
Music, 25, 26	Art 33, 34	Home Ec. 31
Music 51, 52	Art 27, 28	Home Ec. 62
Music 61, 62	Art 31	Land Arch. 51
Music 75, 76	Art 75	Flori. 58
English 81	Land Arch. 83, 84	Phys. Ed. 61, 62, 81, 82
Speech 89	Art 77, 78	

GERMAN

A. N. Julian, *Adviser*

The courses in German are intended to give a practical knowledge of the language for the purpose of wider reading, research, and oral communication.

During the junior and senior years each student will complete not less than 24 and not more than 30 credits in the junior-senior German courses. Students planning to use the language professionally are also urged to supplement their courses here with a summer session at an approved school of German.

HISTORY AND SOCIOLOGY

Curricula in History, Sociology and pre-professional Social Work are offered.

HISTORY

A. A. Mackimmie, *Adviser*

The courses in History are intended to impart an understanding of the people of the world and their problems through an analysis of man's development in the past. A major in this field should provide the student with a broad cultural background and a basis for good citizenship. History may have special value for the following groups:

(1) Those who plan to teach History or the Social Studies.

(2) Those who plan careers in which considerable knowledge of History is desirable. These might be in fields such as Law, Government Service, Journalism, and Library Work.

Students who wish to major in this Department are expected to conform to the institutional and divisional requirements of the freshman and sophomore years, including History 5 and 6. In choosing sophomore Liberal Arts electives they should include two semester courses in History.

In addition to the above courses, students are expected to take a minimum of 24 credits in the elective junior and senior courses. History 25 should be elected in the junior year if not taken as a sophomore elective. History 59 and 60, American History, and History 91 and 92, Historical Bibliography are required.

SOCIOLOGY

J. H. Korson, *Adviser*

The courses in Sociology are planned with two aims in view:

(1) To give the student an understanding of the factors which influence men in their activities and interests as members of society, and

(2) To prepare those students who are interested in teaching Social Studies at the high school level; or those students interested in careers with government agencies; or in careers as social workers with state or private agencies to gain the pre-professional courses necessary before embarking on such careers. Most agencies require some work on the graduate level before full-time employment is obtained, while others offer in-training opportunities to graduate majors in Sociology.

Students who expect to major in Sociology are advised to elect freshman Biology and Physiology 32. At least 18 junior-senior credits in Sociology are required. Students are required to take Sociology 53 and are also urged to select courses in Economics, History, Political Science, and Psychology.

SOCIAL WORK

J. H. Korson, *Adviser*

Students interested in pre-professional training in Social Work are advised to follow the curriculum in Sociology. The American Association of Schools of Social Work indicates that the pre-professional subjects most closely related to professional work in this field are Economics, Political Science, Psychology, and Sociology. The Association recommends that prospective students of Social Work or Social Administration take not fewer than 12 semester hours in one of these subjects while taking less in others. It also recognizes the value of courses in Biology, History, English as well as other subjects contributing to a broad cultural background for the student.

PSYCHOLOGY

C. C. Neet, *Adviser*

The courses in Psychology are designed (1) to impart an understanding of human behavior and the application of this knowledge to problems of human adjustment; (2) to give preparation for professional work in Psychology and related fields; (3) to aid in the training of school teachers.

Careers open to Psychology majors include: Psychological Teaching and Research, Vocational Guidance, Psychometrics, Personnel Work, Child Welfare, Abnormal and Clinical Psychology, and Government Service. Additional graduate training is required for certain of these careers.

Students planning to major in psychology should elect Psychology 28 in the sophomore year.

In the junior and senior years majors are advised to take a minimum of 24 credits in Psychology. Courses 51 and 90 are required. As broad a cultural background is advised as major programs will permit. Majors planning careers primarily in Experimental and Physiological Psychology should plan to take one or more courses during their four years in Chemistry, Mathematics, Physics, Physiology, Statistics, and Zoology. Those planning careers in Abnormal and Clinical Psychology, and in Child Welfare, should obtain a background in Education, Physiology, Sociology, Statistics, and Zoology; while those planning careers in Psychrometrics, Vocational Guidance, Personnel Work, and Government Service should be well informed in Economics, Education, Political Science, Sociology, and Statistics.

ROMANCE LANGUAGES

C. F. Fraker, S. C. Goding, *Advisers*

The courses in French and Spanish are intended to give a rounded knowledge of the language for the purpose of wider reading, oral communication, and research, leading to a better understanding of the art and the science and the peoples of French and Spanish speaking nations.

Students may specialize either in romance languages or in French alone. The student is required to earn 30 junior-senior credits in the department. Major students preparing to use a language professionally are usually urged to supplement their courses here with a summer session in an approved school of languages.

DIVISION OF MILITARY SCIENCE AND TACTICS RESERVE OFFICERS' TRAINING CORPS

COLONEL RICHARD B. EVANS, *P M S & T, Head*
LT. COLONEL FRANCIS W. NYE, *Assistant P M S & T*
MAJOR HOWARD C. PARKER, *Assistant P M S & T*

Under act of Congress, July 2, 1862, the College was required to provide a two-year course in military instruction under a regular army officer. All able-bodied four-year male students are required by the University to take this course. Under act of Congress, June 3, 1916, as amended by act of Congress, September 8, 1916, there was established at this college in April, 1917, an infantry unit of the Reserve Officers' Training Corps. Following World War I, under an act of Congress, July 19, 1918, the Reserve Officers' Training Corps was in operation under the regulation of the War Department, administered by the president of the college and the professor of military science and tactics. Beginning with the fall term, 1920-21, the infantry unit of the Reserve Officers' Training Corps was converted into a horse cavalry unit. The cavalry unit continued training until June, 1943, at which time the Advanced Course ROTC was discontinued for the duration of World War II. From September, 1943 through June, 1946 the Reserve Officers' training Corps conducted courses in the basic course, branch immaterial only. In September, 1946, the Advanced Course ROTC was reinstated with an Armored Cavalry unit and an Air Corps unit.

The primary objective of the Reserve Officers' training corps is to provide systematic military training at civil educational institutions and to produce junior officers who have the qualifications and attributes essential to their progressive and continued development as officers in the Army of the United States. It is intended to attain the objective during the time the students are pursuing their general or professional studies, with the least practicable interference with their civil careers.

All male candidates for a degree in the four-year course, except veterans of World War II, must take the basic course of at least three hours a week of military training for two years. Veterans of World War II are not required to take the basic course, but are eligible to apply for the Advanced Course.

The courses for the freshman and sophomore years (elementary or basic course) will not be specialized by arm or service. The course of instruction includes theoretical and practical work in all phases of military science, such as military organization, hygiene and first aid, weapons, maps, military administration, military law and boards, and leadership, drill and exercise of command. Approximately forty per cent of the course is classroom and sixty per cent practical work.

Students who are approved by the president of the University and the professor of military science and tactics may elect to take the advanced course in their junior and senior years and may enroll in either the armored cavalry unit or air corps unit. Advanced students will be commissioned in the organized reserve corps, in the respective branch, upon graduation. Honor graduates are offered a commission as 2nd Lieutenants in the Regular Army. Other graduates may elect to serve for two years extended active duty and by this means win a commission in the Regular Army.

The advanced course, in either branch, consists of at least five hours per week, and an advanced summer camp of about six weeks during the summer vacation between the two years of the advanced course. Students taking the advanced course are paid by the War Department at a rate equivalent to the value of the garrison ration which at the present time is 79c per day, or about $24.00 per month. Advanced students are paid the pay of the 7th grade (private) while at summer camp.

All students are provided with a complete officer's uniform by the Army. A deposit of $30.00 is required to cover cost of loss or damage to any articles issued.

SCHOOL OF SCIENCE

C. P. ALEXANDER, *Dean*

The School of Science includes the Departments of Bacteriology and Public Health, Botany, Chemistry, Entomology and Zoology, Geology and Mineralogy, Mathematics, Physics, and Physiology. The programs of study outlined by these departments lead to the degree of Bachelor of Science.

The School, through departments, provides professional and pre-professional training for those students planning to enter the fields of Science. Courses in Science required by, or of interest to, students enrolled in other divisions are also available.

Each department offers the usual requirements of undergraduate specialization in its particular field. These offerings enable the students to enter the fields of Science and to continue to study for advanced degrees. In addition, special curricula are provided to meet the needs of special groups of students. These include curricula for pre-medical, pre-dental, and pre-veterinary students, and for those who plan to train as laboratory technicians and to enter Public Health Service.

The curricula in the School of Science are planned to provide a broad and cultural education, as well as opportunities for specialized training. To this end the work of the first two years is largely prescribed, specialization occurring in the junior and senior years. The concentration of the junior and senior years gives students as high a proficiency in their fields of specialization as is possible without sacrificing the objectives and requirements of a well-rounded education.

CURRICULA IN SCIENCE

FRESHMAN YEAR

Freshman work in the School of Science consists of definitely required subjects resulting in a fairly uniform program of studies for all students.

FRESHMAN YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
[2]Mathematics 7	3	Mathematics 8 or 10	3
English 1, Composition	3	English 2, Composition	3
Chemistry 1, General	3	Chemistry 2, General	3
Biology (Botany 1 or Zoo. 1)	3	Biology (Botany 1, or Zoo. 1)	3
German 1 or 25, or French 1, 5, 7	3	German 2 or 26, or French 2, 6, 8	3
Military 1 (men)	3	Military 2 (men)	2
Physical Education 3 (men)	1	Physical Education 4 (men)	1
Physical Education 7. (women)	2	Physical Education 8 (women)	2
		Hygiene (women)	1

SOPHOMORE YEAR

In the sophomore year each student must take the required English, a Social Science, a Science, and two elective courses under the direction of his adviser.

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Survey of Lit.	2	English 26, Survey of Lit.	2
Speech 29	1	Speech 30	1
Economics 25 or Psychology 26	3	Economics 25 or Psychology 26	3
[1]Science	3	Science	3
[2]Electives	6	Electives	6
Military 25 (men)	2	Military 26 (men)	2
Physical Education 27 (women)	2	Physical Education 28 (women)	2

[1] Elect one of the following:

1st Semester	*Credits*	*2nd Semester*	*Credits*
Bacteriology 31, 31A	4	Botany 26	3
Botany 25	3	Chemistry 30	4
Chemistry 29	4	Chemistry 32	3
Chemistry 31	3	Entomology 26	3
Geology 27	3	Geology 28	3
Mathematics 29	3	Mathematics 30	3
Physics 25	4	Physics 26	4
Zoology 25	3	Physiology 32	3
		Bacteriology 31, 31A	4

[2] To consist of additional sciences selected from the above list, or a Science and a Language. In selecting the required and elective courses in Science and Language, students should be guided by the recommendations for Sophomore work given under the description of Junior-Senior curricula that follows.

JUNIOR-SENIOR CURRICULA IN SCIENCE

Major work is provided in the following departments. In addition, there are other special curricula both pre-professional and professional that cut across departmental lines. Students desiring complete information in regard to the opportunities and program of study in each curriculum are expected to consult the adviser in charge.

BACTERIOLOGY AND PUBLIC HEALTH

L. A. Bradley, *Adviser*

The Department offers three curricula one in Bacteriology, one in Public Health, and the other in Medical Technology. For a description of the special curricula in Public Health and Medical Technology see pages 130 and 131 of the catalogue.

The courses in Bacteriology have been planned to furnish (1) a general training in this field for college students; (2) specialization for those contemplating a professional career in Bacteriology.

Majors in Bacteriology should elect the following in the sophomore year: Chemistry 29, 30; Physics 25, 26; Bacteriology 31, 31A; Physiology 32. The Physics may be deferred until the junior year to allow for additional language study.

Juniors and seniors must take Chemistry 51, 52, and 79; and Botany 66 in addition to the required work in Bacteriology and Public Health.

BOTANY

A. V. Osmun, *Adviser.*

The purpose of the courses in Botany is primarily to provide a thorough background for specialization in the science, and secondarily to support and supplement the work of other fields in which knowledge of plant life is held to be important. Certain courses should likewise prove of interest and value to the general student.

Those who wish to specialize in Botany will find here an ample field and an adequate opportunity for advanced undergraduate study. Postgraduate training, often with provision for financial aid, is available in most graduate institutions, and many teaching, research and industrial positions in schools, and colleges, experiment stations, Federal and state services and private enterprise are open to the trained botanist.

The curriculum offers to the student an opportunity to acquire either a broad general knowledge of Botany, or to devote himself to more extensive study in one of the major divisions of the science, such as Plant Morphology and Taxonomy, Plant Physiology, Mycology and Plant Pathology. Under the direction of his adviser each student selects a program of courses in Botany and other sciences, humanities and arts which seems best adapted to his particular botanical objectives.

Specialization in Botany assumes the satisfactory completion of certain basic and supporting courses prior to the junior year. These include Botany 1, 25 and 26; Chemistry 1, 2, 29 and 30; and a Modern Language. Two years of German are advised.

The junior-senior program requires that courses in Botany to the amount of 15-30 credits be chosen under the guidance of the adviser. He will also make recommendations in regard to electives.

CHEMISTRY

W. S. RITCHIE, *Adviser*

The objectives in Chemistry are to give the student an understanding of the subject which will enable him to appreciate the relation of Chemistry to other sciences, and to industry, and to provide training for those who intend to become teachers and workers in the allied sciences, and for those who wish to go on to graduate study and a professional career in Chemistry. Completion of the course in Chemistry fits the student for positions in the chemical industries and related fields as well as in the agricultural industry, for employment in state and Federal agricultural experiment stations and commercial laboratories and for teaching.

Students planning to major in Chemistry should elect German in the freshman year. The sophomore program should include Chemistry 29, 30; Mathematics 29, 30; and Physics 25, 26.

Work for the junior and senior years includes required courses in Analytical, Organic, and Physical Chemistry and the possibility of election in related and supporting fields. While the major is arranged to provide general and fundamental training in the science, work in the humanities and social sciences is also recommended. The desirability and necessity of a well rounded education must not be overlooked.

ENTOMOLOGY AND ZOOLOGY

This Department offers two curricula, one in Entomology and the other in Zoology. In addition, courses in Biological Field Studies are available. These constitute a part of the required work in the Special Curriculum in Recreational Leadership described on page 132.

ENTOMOLOGY

C. P. ALEXANDER, *Adviser*

Courses in Entomology serve two purposes: (1) to give students a general knowledge of insects, particularly in their relations to man, his crops, his domestic animals, and his health; (2) to train students desiring to specialize in Entomology to become United States, state, or experiment station entomologists, teachers, forest entomologists, tree wardens, or to occupy other position where an expert knowledge of insects is required.

The courses in Beekeeping are offered with the following aims: (1) to meet the increase in vocational opportunities for the production of bees or honey as a business; (2) to study the beekeeping needs of fruit and truck-crop industries and the part that bees play in the pollination of flowers; (3) to acquaint the student with a recreational field that can be made profitable.

Majors are required to take Entomology 26 in the sophomore year. Strongly recommended sophomore subjects include Botany 25, 26; Zoology 25; Chemistry 29, 30; Physiology 32; and either French or German, or both.

Juniors and seniors should support their work in Entomology with the following courses: Botany 51, 64, 65; Bacteriology 61, 62; Chemistry 51, 52; Zoology 51, 69, 70; Pomology 56; English 83; and courses in Education, Physiology, Floriculture, Horticulture and languages.

ZOOLOGY

G. L. Woodside, *Adviser*

The courses in Zoology have two major aims: (1) to offer students an opportunity to develop an understanding and appreciation of the scientific method as a part of a liberal education; and (2) to provide training of a more vocational nature for prospective graduate students in Biology, Medicine, Dentistry, and related fields, as well as future teachers and laboratory technicians in the biological sciences.

Majors should include the following in the sophomore year: Zoology 25, Entomology 26, Chemistry 29 and 30, Physics 25 and 26.

In addition to the required work in Zoology in the junior and senior years Chemistry 51, and 52, Physiology 32, 75, and 76 should be included.

GEOLOGY AND MINERALOGY

L. R. Wilson, *Adviser*

The offerings in Geology and Mineralogy are intended chiefly for those who wish to gain some acquaintance with one or more branches of earth science. For the general student prerequisite requirements are reduced to a minimum. A program of moderate specialization may be provided for science majors who are interested in Geology.

To major in Geology a student must complete thirty credit hours of work in the department. Those who have completed nine or more credits in Geology in addition to the sophomore courses by the end of the junior year, and who wish to satisfy major requirements for graduation in the field of Geology, will be given individual or group problems in the senior year. The nature of the work will depend upon student interest and preparation. In any junior or senior course in Geology an additional period per week without credit may be required of students who specialize in this field. Chemistry through qualitative analysis and a year's work in college Physics represent minimum requirements in these respective fields for undergraduate specialization in Physical Geology. For those interested in pursuing studies in stratigraphy or paleontology, work beyond the freshman year in the systematic aspects of both Botany and Zoology is essential for satisfactory progress.

MATHEMATICS

A. E. ANDERSEN, *Adviser*

The Department offers courses designed to furnish a cultural background as well as a foundation for both undergraduate and graduate work in such fields of Science as Physics and Chemistry, in Engineering and other technical subjects.

Major work is available for those desiring to make the teaching of Mathematics and Science, actuarial and statistical work their profession.

Each student who plans to major in Mathematics will, upon consultation with his adviser, select a program of studies best suited to his individual needs. He is required to take Mathematics 29 and 30 in the sophomore year and is advised to include Physics 25 and 26.

During the junior and senior years each major must complete at least fifteen credits in the following courses: Mathematics 55, 60, 62, 65, 66, 71, 72, 91, and 92.

PHYSICS

W. F. POWERS, *Adviser*

The Physics courses give opportunity for the study of basic physical laws and phenomena of nature.

Emphasis is put on the applications of the principles studied. From these courses students may make a selection to satisfy a major in Physics, or to comply with requirements for graduate study.

Majors must take Physics 25, 26 and Mathematics 29, 30 in the sophomore year. They are also advised to elect Chemistry 31 and 32.

Juniors and seniors should plan to take all of the courses offered by the Department. These courses should be supported by additional work in Mathematics and Chemistry. As the interests of major students will vary, the Department members will be glad to make suggestions to individuals regarding their program of studies.

PHYSIOLOGY

G. E. GAGE, *Adviser*

The courses in Physiology have been planned to furnish fundamental knowledge concerning function and activities of cells and organic structures in relation to man and animals. A major program and also supplementary work are available for the training of students in Psychology, Zoology, Bacteriology, and other Biological Sciences. Those interested in Nutrition, Human or Veterinary Medicine, Public Health, teaching, and in becoming laboratory or medical technicians will also find supporting courses in this field desirable.

Students planning to major in Physiology should elect Bacteriology 31 and 31A, Physics 25 and 26, and Physiology 32 in the sophomore year. The other elective should be in Liberal Arts, preferably a Foreign Language.

Majors should take Chemistry 51 and 52 and Bacteriology 52 in the junior year; Bacteriology 81 and 82, or 85, Zoology 65 and 66 in the senior year in addition to the required work in Physiology. German 25 and 26 and History 61 are also recommended.

SPECIAL CURRICULA IN SCIENCE

In addition to the major work provided in the Departments previously listed the following special curricula are available. For the most part these cut across departmental and even divisional lines. Students in these curricula follow the uniform science program for the freshman year and the recommendation in regard to sophomore electives indicated in each curriculum.

CURRICULUM IN MEDICAL TECHNOLOGY

R. L. France, *Adviser*

This curriculum provides a broad fundamental training for young women who plan to qualify as medical technologists. The program more than meets the basic collegiate requirements of the Registry of Medical Technologists of the American Society of Clinical Pathologists.

Through an agreement between the Bingham-Rockefeller Laboratories and the University, each year a certain number of graduates of the course will be accepted as technicians in laboratories supervised by the Bingham-Rockefeller Foundation. There the technicians will receive further theoretical and practical training so that after a year they will be qualified to take the examination for the Certificate of Medical Technologist. A satisfactory living salary is paid the technician during the year of training and unusual opportunities for advancement are offered.

Also, through the cooperation of the Bingham-Rockefeller laboratories, the University Placement Service, and the Department of Bacteriology and Public Health, graduates other than those accepted by the Bingham-Rockefeller foundation will be placed in laboratories certified by the American Society of Clinical Pathologists as qualified to train medical technologists.

Students taking this curriculum should complete the following sciences in the sophomore year: Bacteriology 31A; Chemistry 29, 30; and Physiology 32.

The junior-senior program follows:

Junior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Bacteriology 51, Advanced	3	Bacteriology 52, Advanced	3
Chemistry 31 or 51, Organic	3-4	Chemistry 32 or 52, Organic	3-4
Public Health 61, Sanitation	3	Public Health 62, Sanitation or	3
Zoology 51, Microtechnique	3	Public Health 88, Communicable disease control	3
Electives	3	Electives*	6

Senior Year

1st Semester	*Credits*	*2nd Semester*	*Credits*
Bacteriology 81, Applied	3	Bacteriology 82, Applied	3
Bacteriology 85, Serology, Immunology	3	Bacteriology 92, Clinical	3
Zoology 69, Medical parasitology	3	Chemistry 80, Clincal	3
Electives	6	Electives*	6

* During the junior-senior years students elect 21 credits from the following:

History, required course
Chemistry 79, Physiological
Chemistry 82, Qualitative organic
Physiology 75
Physics 25, 26 Introductory
Liberal Arts

PRE-MEDICAL CURRICULUM

Advisory Committee: G. L. Woodside, Chairman, W. L. Machmer, G. W. Alderman, L. M. Bartlett, R. W. Fessenden, J. H. Smith.

Students planning to enter Medical, Dental or Veterinary Schools should register for this curriculum. Applicants for admission to such professional schools far exceed the number that can be accepted. Students should realize, therefore, that only well qualified, high ranking candidates may be admitted.

Although some professional schools do not require the Bachelor's degree for admission, it is highly desirable that a student plan to complete the work for the B.S. or A.B. For this the University requirement of a minimum of fifteen junior-senior credits in some one department must be met in conjunction with the curriculum outlined below.

During the first two years students in this curriculum follow the School of Science program as outlined on page 125. In the sophomore year they should elect the following: Chemistry 29, 30; Physics 25, 26; German 25, 26. In the senior year Chemistry 65, 66 (Physical) is highly recommended (prerequisites, Mathematics 29, 30).

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Chemistry 51, Organic	4	Chemistry 52, Organic	4
Zoology 65, Comp. Vert. Anatomy	3	Zoology 66, Comp. Vert. Anatomy	3
History	3	[1]Electives	9
[1]Electives	6		

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Zoology 75, Vert. Embryology	3	Zoology 76, Vert. Embryology	3
[1]Electives	12	[1]Electives	12

[1] The electives of the junior and senior years should include the requirements of the department in which the student wishes to major. Pre-medical students should elect as many courses in the School of Liberal Arts as possible, since Class A medical schools uniformly stress the importance of a broad general education.

CURRICULUM IN PUBLIC HEALTH

L. A. BRADLEY, *Adviser*

Through the cooperation of several departments of the College and the Massachusetts Department of Public Health, curricula are provided for (1) a limited number of students interested in the many phases of public health service for which graduate work in medical or engineering schools is not essential; and (2) students planning graduate work in Sanitary Engineering.

Particular attention will be given to the training of sanitarians, district sanitary officers, food and milk inspectors, water and sewage treatment plant operators, technicians for public health laboratories, and agents for local boards of health. Students planning graduate work in Sanitary Engineering must also take mathematics 29 and 30 (calculus) before the end of their Junior year.

The following curriculum is required of all upperclassmen:

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Bacteriology 51, Advanced	3	Public Health 62, Sanitation	3
Public Health 61, Sanitation	3	Bacteriology 90, Sanitary	3
Chemistry 31 or 51, Organic	3-4	Chemistry 32 or 52, Organic	3-4
Electives	6	Electives	6

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Agr. Econ. 79, Statistics	3	Public Health 86, Field Studies in Sanitation	3
Public Health 84, Administration	3	Public Health 88, Epidemiology Communicable Disease Control	3
Electives	9	Electives	10

ELECTIVES

During the Junior-Senior years, students elect a minimum of 24 semester credits from the following:

1st Semester	*Credits*	*2nd Semester*	*Credits*
An. Hus. 53, Elements of Meat Packing	3	Bact. 82, Food	3
Chem. 63, Water and Sewage	3	Public Health 64, Planktology	3
Econ. 61, Public Administration	3	Bot. 66, Industrial Mycology	3
Engineering 1, Drawing	3	Dairy Ind. 52, Market Milk	4
Engineering 77, Water Supply	3	Econ. 62, Public Administration	3
Food Tech. 75, Food Preservation	3	Engin. 78, Sewerage	3
Forestry 51, Management of Water Sheds	3	Ent. 60, Pest Control	3
Geol. 27, Physical Geology	3	Ent. 74, Medical Ent.	3
Vet. Sci. 51, Animal Hygiene	3	Food Tech. 92, Food Analysis	3
Zool. 69, Parasitology	3	Home Ec. 52, Nutrition	3

CURRICULUM IN RECREATIONAL LEADERSHIP

W. G. VINAL, *Adviser*

This curriculum is opened to a limited number of recommended students who seek training as leaders in the various recreational activities (physical, park, community, nature, camping, and the like).

The course of each student is planned to fit his personal aims and aptitudes. The freshman and sophomore requirements are those of the Division of Physical and Biological Sciences. The required upperclass courses are Bacteriology 61, Art 75; Biological Field Studies 51 and 52, 61 and 62 or Physical Education 73. A minimum of 15 semester hours in some one field related to that branch of Recreational Leadership chosen by the student is expected.

Because programs of study vary with the individual student, three types of curricula taken by former students are given below:

PLAYGROUND LEADER IN URBAN AREAS

JUNIOR YEAR		SENIOR YEAR	
German 25	Physical Educ. 53	Bacteriology 61	Entomology 26
Physics 25	German 26	Land Arch 51	English 64
Forestry 55	Forestry 56	Land Arch 79	Land Arch 52
Biol. Field Stu. 51	Biol. Field Stu. 52	Art 75	Bacteriology 62
Physical Educ. 55	Physical Educ. 72	Biol. Field Stu. 61	Biol. Field Stu. 62
		Physical Educ. 71	Physical Educ. 52

RANGER NATURALIST IN METROPOLITAN AND NATIONAL PARKS

Military Science 51
Sociology 51
Land Arch 51
Bacteriology 61
Forestry 55
Biol. Field Stu. 51

Military Sci. 52
Land Arch 52
Economics 25
Astronomy 58
Forestry 56
Biol. Field Stu. 52

Military Sci. 75
Botany 81
Land Arch 75
Botany 25
Speech 91
Biol. Field Stu. 61

Military Sci. 76
Botany 84
Geology 62
Physical Educ. 72
Biol. Field Stu. 62

COMMUNITY RECREATION

Sociology 51
Education 51
French 29
Bacteriology 61
Physical Ed. 61
Biol. Field Stu. 51
Music 61

Entomology 90
Speech 89
French 30
English 46
Physical Ed. 62
Biol. Field Stu. 52

English 65
Speech 91
French 71
Land Arch 75
Physical Ed. 81
Biol. Field Stu. 61

English 51
English 68
Home Economics 80
Physical Ed. 82
Biol. Field Stu. 62
Physics 58

DIVISION OF PHYSICAL EDUCATION

C. S. HICKS, *Head*

The Division of Physical Education includes the Departments of Athletics, Student Health, Physical Education for Men, and Physical Education for Women. It offers one major, that in Physical Education for Men.

INTERCOLLEGIATE ATHLETICS

C. S. HICKS, *Director*

The following men are in charge of the coaching of the intercollegiate teams:

Thomas W. Eck, Head Coach of Football, and in charge of Publicity; Lorin E. Ball, Assistant Coach of Football and Coach of Basketball; L. L. Derby, Coach of Track and Cross Country; L. E. Briggs, Coach of Soccer; Joseph R. Rogers, Jr., Coach of Swimming; Earl Lorden, Assistant Coach of Football and Coach of Baseball; Sidney W. Kauffman, Assistant Director of Athletics and in charge of Intramural Sports; Stanley F. Salwak, Coach of Tennis and Trainer.

STUDENT HEALTH

DR. E. J. RADCLIFFE, *Head*

Regulations in regard to Student Health are outlined on page 64.

All freshmen are required to attend a series of lectures on personal hygiene. For men, these lectures are included in the Military program; for women, they are designated as Hygiene, and taught by the Health Service staff.

PHYSICAL EDUCATION FOR MEN

The work in the Department of Physical Education for Men includes required and elective physical fitness activity courses for all four years; and the opportunity to major the last two years in Physical Education; or to minor in Physical Education, Teacher-coaching or Physical Recreation.

The physical fitness activities courses for men, which are required the first two years and urged upon the upperclassmen are planned to help every man student to at least meet accepted reasonable minimum standards of physical fitness; and then, through regularity and continuity of progressively planned exercise, maintain good physical condition throughout his college career. Every freshman must pass a reasonable physical fitness rating and learn to swim.

The majors and minors in Physical Education are so planned as to qualify volunteer and professional leaders and instructors in Physical Education, Athletics, Health and Safety Education, and Physical Recreation for service and adult organization, organized summer camps, public service and industrial groups, schools and colleges.

The outline of the Physical Education Major follows. It is contemplated that Physical Education majors will be well trained in general scientific and cultural subjects as well as to be themselves physically fit. They are urged to elect advanced Military and courses in Education. Those planning on Teacher-Coaching should take additional work in their particular subject matter fields.

FRESHMAN YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 1, Composition	3	English 2, Composition	3
Mathematics 7, Algebra and Trigonometry	3	Mathematics 8, Algebra	3
Physical Education 5, Survey	3	Physical Education 22, First Aid	3
Military 1	3	Military 2	2
Physical Education 3, Activity	1	Physical Education 4, Activity	1
Elect two:		*Elect two:*	
Chemistry 1, General	3	Chemistry 2 General	3
Botany 1, Introductory	3	Zoology 1, Introductory	3
History 5, Mod. European Civiliz.	3	History 6, Mod. Europ. Civiliz.	3

SOPHOMORE YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
English 25, Literature	2	English 26, Literature	2
Speech 29	1	Speech 30	1
Economics 25, Elements	3	Psychology 26, General	3
Physical Education 45, History	2	Physical Education 42, Aquatics and Water Safety	3
Physical Education 33, Activity	1	Military 26	2
Physical Education 43, Officiating	1	Electives (one to be a science)	6
Military 25	2		
Electives (one to be a science)	6		
Electives:		*Electives:*	
Bacteriology 31 Introductory	2	Physiology 32	3
Bacteriology 31A, Intro. Lab.	2	Chemistry 32, Organic	3
Chemistry 29, Qualitative	4	Physics 26, Light, Electricity	4
Chemistry 31, Organic	3	Language	3
Physics 25, Mech., Sound, Heat	4	History	3
Language	3	Physical Education 57, Camping	3
History 25, American Govt.	3		

JUNIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Physical Ed. 53, Elem. Schools	3	Physical Ed. 54, Special Methods	3
Physical Education 51, Coaching	3	Physical Education 52, Coaching	3
Physical Education 63, Activity	1	Physical Education 77, Anatomy	3
Electives	9	Physical Education 64, Activity	1
		Electives	6

SENIOR YEAR

1st Semester	*Credits*	*2nd Semester*	*Credits*
Physical Ed. 71, Spec. Problems	3	Physical Ed. 56, Administration	3
Education 85, Prac. Teach.	3	Physical Ed. 78, Kinesiology	3
Physical Ed. 83, Activity	1	Physical Ed. 84, Activity	1
Electives	9	Electives	9

To comply with state certification requirements in education, Physical Education majors must take Education 51, Methods; Education 83, Secondary; Educational Psychology 55; and Education 85, Practice Teaching. It is recommended, for elective education courses, that Education 88, Curriculum, be first choice and if impossible to schedule it, that Education 53 Tests and Measurements be taken.

PHYSICAL EDUCATION FOR WOMEN

RUTH J. TOTMAN, *Adviser*

The courses in Physical Education for Women are planned to provide recreative activity, to develop body grace and efficiency, and to increase health and vigor. No major is available.

The first and second year women students are required to take Physical Education three times a week and are given two credits for each semester of satisfactory work. Third and fourth year students may elect Physical Education 61-62 or 81-82.

A physical examination is given before classes begin in the fall. Girls who are restricted from unlimited activity are placed in classes suitable to their ability. Girls who are restricted from all class activity are assigned to rest periods three times a week and receive their regular Physical Education credit for satisfactory attendance. A similar rest program is substituted for the regular activity program when girls are temporarily incapacitated.

DIRECTORY OF COURSES

This section contains a list of courses offered in the regular sessions of the College. Course descriptions are arranged alphabetically according to subject matter fields. If any course cannot be found readily, refer to the General Index in the back of the catalogue. A separate bulletin will outline those available during the summer. The College reserves the right to withdraw any course for which an insufficient number of students enroll.

Courses are designated by numbers as follows: freshman 1-24 inclusive; sophomore 25-49 inclusive; junior 50-74 inclusive; senior 75-99 inclusive. Odd numbers designate courses given in the first semester, even numbers those offered during the second. Credit is indicated in terms of semester hours. Where possible, the class schedule follows the course description. A complete schedule of class hours is published at the beginning of each semester.

Students are referred to the section on Divisions of Study and Curricula for a statement of graduation requirements and majors available.

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

Professor Lindsey, Professor Barrett, Mr. Russell

26. (II) Economics of Agricultural Production.—This course considers the principles of production economics. An analysis of specialization, comparative advantage, diminishing, constant, and increasing costs and returns applied to the individual establishment as well as to the nation. A careful study of the combination of the factors of production is made considering the individual's adjustment when operating under monopolistic competition, laissez-faire, and monopoly. Finally, dynamic and static factors are considered in relation to their effects on the individual's production, on the economy of cities and nations, and on the international economy.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Mr. Russell.
Prerequisite, Economics 25.

55. (I) Marketing Farm Products.—Not open to students who have taken or are taking Economics 53. An analysis of present and past systems of assembling, transporting, distributing, and grading agricultural products. Such aspects as the adjustment of production and consumption, price formation, channels of distribution, price differentials and margins, public policy, market reporting and forecasting, and a study of the marketing of major agriculture products are considered. Geographic, future, and quality differentials are studied from the agricultural and commercial standpoint.

2 class hours; 1 2-hour laboratory period. Credit 3.
11:00-11:50 Tu. Th. 2 hours by arrangement. Mr. RUSSELL.

56. (II) THE FUNDAMENTALS OF COOPERATION.—A study of the philosophy and principles of cooperation in Europe and in the United States. The history of cooperation, legal consideration, management, financing, membership relations, methods of formation, sales methods and policies are given full attention. Progress in the cooperative marketing of different agricultural products is studied.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Mr. RUSSELL.

57. (I) AGRICULTURAL CREDIT AND LAND APPRAISAL (1948-49).—A study of the development, use, functions, and operations of public and private credit institutions which are available to agriculture. Special emphasis is given to the practical aspects of credit policy and land appraisal. Given in alternate years.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor LINDSEY.

71. (I) AGRICULTURAL ECONOMIC THEORY (1949-50).—The course is a comparative and critical study of the significant contributions of the leading economists to the theory of agricultural economics from the time of Adam Smith to the present. Given in alternate years.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor LINDSEY.

76. (II) FARM ORGANIZATION AND MANAGEMENT.—This course analyzes the functions of the farmer as a business proprietor. Both the external and internal economic forces affecting the farm business are considered, such as selection and combination of factors of farm production, choice and combination of farm enterprises, the economical use of funds, nature of farming costs and adjustments to price changes. The use of farm records and accounts as a basis for planning and budgeting is emphasized. "Scientific management" as applied to efficient farm technique is taken up. The last part of the semester the course will be given over to the specific study of selected farms and the practical application of the principles and practices already discussed. Field trips are required. The approximate expense for travel is five dollars.

2 class hours; 1 2-hour and 1 4-hour laboratory period Credit, 4.
Prerequisite, Agricultural Economics 26. Professor BARRETT.

78. (II) PRINCIPLES AND PROBLEMS OF LAND ECONOMICS.—A study of the major contributions by outstanding economic writers to theoretical land economics; a review of American land policies; a presentation of the principles, techniques, and objectives involved in modern land use planning; and a discussion of contemporary land problems in the United States.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor LINDSEY.

79. (I) PRINCIPLES AND METHODS OF STATISTICS.—Methods of collecting, analyzing, interpreting, and presenting statistical data. Sampling

principles, averages, dispersion measures, index numbers, time series and simple correlation are specific fields covered. Practical problems in agriculture and business are given in the laboratory.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Professor LINDSEY and Mr. RUSSELL.

80. (II) ADVANCED STATISTICS.—This course is primarily devoted to linear and curvilinear multiple correlation analysis. Machine and short-cut graphic methods are used. Some time will also be devoted to probability and analysis of variance.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Professor LINDSEY.

88. (I) ADVANCED FARM OPERATION.—For seniors specializing in agriculture; others by permission of instructor. A study of the efficiency of operations on a specific farm.

3 hours or equivalent. Credit, 3.
Hours by arrangement. Professor BARRETT.

89. (I) 90. (II) PROBLEMS IN AGRICULTURAL ECONOMICS.—This course may be conducted as a seminar or individuals may be assigned specific problems in price, credit or market analysis. It may also cover problems in land use and farm management.

Credit, 1-3.
Hours by arrangement. The DEPARTMENT.

AGRONOMY

Professor SIELING, Associate Professor DICKINSON, Assistant Professor THAYER, Assistant Professor EVERSON, Mr. ZAK, Mr. RUSSELL

2. (II) SOILS.—This is an elementary course relating soils and their management to crop growth. This course is designed to give the student a broad background in soil science and its direct application to practical field problems. The course itself is presented with the object of introducing to the student the properties of soils and their influence upon the production of crops. The laboratory work consists of investigation of the fundamental characteristics of soil and basic principles of

2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu. Th.; 3:00-4:50 W. or Th.
Assistant Professor EVERSON, Mr. ZAK, Mr. RUSSELL.

51. (I) FIELD CROPS.—A study of the field crops of the United States which will include their uses and improvement, with their soil and climatic requirements. Emphasis will be given to the best farm practices of the northeastern states as to rotation, liming, fertilizing, seeding methods, tillage, disease and insect control, and to methods of harvesting and storage. As an individual problem, each student must make a detailed plan of crop production for the actual conditions of some New England farm.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 Th. Assistant Professor THAYER.

52. (II) SOIL UTILIZATION.—The relationship of climate and native vegetation to the broader aspects of soil formation is described. Man's use of land resources is connected to show how the agricultural background of settlers have been active in soil use and abuse. Soil erosion control and its significance to permanent agriculture is considered
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Assistant Professor EVERSON.

57. (I) SOIL FORMATION.—The first part of this course considers those physical, chemical, biological, climatic and geological factors involved in soil formation. The relationship of these factors to the kinds of soils formed in the United States is discussed.
3 class hours. Credit, 3.
Assistant Professor EVERSON.

77. (I) CROP IMPROVEMENT.—Theory and practice of the improvement of field crops by breeding and selection.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. The Department.
Prerequisites, Agronomy 51, Pomology 51, 52.

78. (II) FERTILIZERS.—The primary purpose of this course is to relate soils and fertilizers to plant growth. Studies are made of fertilizer practices in the United States and Europe. In the early part of the course consideration is given to the history of fertilizer development, with special emphasis upon early discoveries and causes of failure in early research. Later in the course, studies are made of factors which relate fertilizers and soils to plant growth. Fertilizer formulation technology and practice are considered in detail in the laboratory phase of this course.
2 class hours; 1 2-hour laboratory period. Credits, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 Th. Assistant Professor EVERSON.

79. (I) SOIL PHYSICS.—For seniors specializing in agronomy. The factors in soil which control tilth and energy relationships and the laws of physics which govern these factors are discussed. This includes heat, light, color, particle size and charge, water and gas movement, energy relationships and other physical factors effecting changes in the soil. The laboratory is used to familiarize the students with various methods used in measuring these important physical factors.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor EVERSON.

81. (I) 82 (II) SPECIAL PROBLEMS IN AGRONOMY.—For seniors specializing in agronomy. This course is designed to acquaint students with agronomic research methods and practical agronomic procedures.
3 2-hour laboratory periods. Credit, 3.

53. (I) AGROSTOLOGY.—All factors that influence the successful growing of fine turf grasses are studied and correlated to enable the student to have a practical working knowledge of the construction and maintenance of lawns, sports, highway, airport and cemetery turf.
2 class hours; 1 2-hour laboratory period. Credit, 3
Associate Professor DICKINSON.

56 (II) Agrostology.—This course considers fine turf management as a business and profession. Emphasis is placed on diagnosis and treatment of turf failures; the selection of equipment and supplies and client approach. Field trips and practical exercises are arranged.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Associate Professor Dickinson.

ANIMAL HUSBANDRY

Professor Rice, Associate Professor Foley, Assistant Professor Blaisdell, Assistant Professor Cowan, Assistant Professor Hale

1. (I) Agriculture.—This course is designed to provide the student with a perspective of the whole field of agriculture both in the old and the new world. The social interrelationships of agriculture, population trends, standards of living, rural health, recreation, etc., are considered as well as the functions of farmers' organizations. Finally, the manifold influences of political trends, tariffs, systems of taxation and the functions of rural institutions, such as the church, the school, the library, on the development of cultural intellectual patterns in rural living are discussed.
2 class hours; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Tu. Th.; 3:00-4:50 W. Th. Professor Rice.

26. (II) Breeds of Livestock and Dairy Cattle Judging.—This course considers the economic desirability of thirty breeds of domestic livestock. The origin, history, characteristics and distribution of the breeds of cattle, sheep, swine, and horses commercially important in the United States will be discussed. During April and May trips will be made on Saturdays to outstanding herds of dairy cattle in New England. The three highest ranking students in advanced judging will represent the College in the Intercollegiate Dairy Cattle Judging Contest at the Eastern States Exposition in Springfield, in September.
2 class hours; 1 4-hour laboratory period. Credit, 3.
11:00-11:50 M. W.; 8:00-12:00 S. Associate Professor Foley.

51. (I) Nutrition of Farm Animals.—This course will present the fundamental principles of animal nutrition together with the identification, composition, properties and uses of the common feed stuffs. The application of these basic principles in calculating balanced rations for all classes of livestock will be stressed, followed by practical feeding problems assigned outside the classroom. Feeding practices in use with the College livestock will be analyzed and demonstrated.
2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu. Th.; 2:00-3:50 W. Assistant Professor Cowan.

53. (I) Elements of Meat Packing.—The lectures will discuss the development of the modern packing industry, the history of meat inspection, the principles of meat preservation and the opportunities in this field. Laboratories include the classification of cattle, calves, sheep, and swine into proper market classes and grades and slaughtering and dressing operations with animals provided by the college farm. Wholesale and re-

tail cuts are prepared and various by-products are manufactured and sold. A one-day trip through the packing houses of Boston is a requirement of this course.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Assistant Professor HALE.

56. (II) HORSE AND FAT STOCK PRODUCTION.—Studies in the historical and economic development, present status and probable future trends of general livestock production in the United States and especially New England. Consideration will be given to types of production, systems of management, methods of marketing, as well as practice in judging and selection and in fitting and showing. The five highest ranking students in judging will represent the College in the Intercollegiate Judging Contests at the Eastern States Exposition in Springfield and the International Livestock Exposition in Chicago the succeeding fall.

2 class hours; 1 2-hour and 1 4-hour laboratory period. Credit, 4.
11:00-11:50 Tu. Th.; 1:00-2:50 F., 8:00-12:00 S.
Assistant Professor COWAN.

72. (II) MEAT JUDGING.—This course deals with the classification, grading and judging of carcasses and cuts of beef, veal, lamb and pork. Class work will be carried on at Amherst and nearby packing and distributing plants. The team to represent the University in the Intercollegiate Meat Judging Contest held in connection with the Eastern States Exposition will be chosen from students in this course.

1 2-hour laboratory period. Credit, 1.
Assistant Professor COWAN.
Prerequisites, Animal Husbandry 51 and 53 or permission of instructor.

73. (I) ADVANCED MEATS.—This course deals with the advanced techniques in preparing, preserving, and utilizing the various meat products from cattle, sheep and swine. It will include practice in judging meat products and the team to represent the University in the Intercollegiate Meat Judging Contest held in connection with the International Livestock Exposition will be chosen from students in this course.

1 2-hour laboratory period. Credit, 1.
Assistant Professor COWAN.
Prerequisite, Animal Husbandry 72 or permission of instructor.

75. (I) ANIMAL BREEDING.—This course is planned to acquaint the student with the facts of reproductive physiology, with the facts and theories of modern genetics, and to show how such knowledge may be utilized through genetic analyses, selection, and systems of breeding for the creation of more beautiful and more efficient animal types.

2 2-hour and 1 4-hour laboratory periods. Credit, 4.
1:00-2:50 Tu. F.; 8:00-12:00 S. Professor RICE.

78. (II) DAIRY CATTLE PRODUCTION.—This is an intensive course covering all phases of dairy cattle and milk production. It affords an

opportunity to seek the solution to the economic, nutritional, genetic, and managerial problems concerned in successful dairying.

4 2-hour laboratory periods. Credit, 4.
8:00-9:50 Tu. Th.; 1:00-2:50 W. F.
Associate Professor **Foley** and Assistant Professor **Blaisdell.**

81. (I) Animal Husbandry Seminar.—
1 2-hour laboratory period. Credit, 1.
Hours by arrangement. Assistant Professor **Foley.**

82. (II) Seminar.—Students will prepare and deliver short talks on suitable animal husbandry or general agricultural topics at each class meeting. In addition, each student will prepare and deliver a paper in the Grinnell Prize Speaking Contest.

1 2-hour laboratory period. Credit, 1.
Hours by arrangement. Professor **Rice.**

91. (I) Genetics and Eugenics.—This course, open to students other than those specializing in animal husbandry, deals with the general problems concerned in human reproduction and inheritance. The main topics studied will consist of the physiology of reproduction, the physical basis of inheritance, and the mode of transmission of human characteristics. Consideration will also be given to such questions as the causes of variation, the relative importance of genetic and environmental influences, the mechanism of sex determination as well as population trends, differential birth rates, sterilization, and kindred eugenic problems.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor **Rice.**

BACTERIOLOGY AND PUBLIC HEALTH

Professor Bradley, Associate Professor Garvey, Associate Professor France, Assistant Professor Perriello, in cooperation with Dr. Walter W. Lee, State District Health Officer; Mr. ———— and Mr. Ernest A. Snow of the Division of Sanitary Engineering of the Massachusetts Department of Public Health.

31. (I) and (II) Introductory Bacteriology. Lectures and Demonstrations.—Designed to present to students interested in general science, agriculture, horticulture, and home economics the fundamental concepts of bacteriological science; make microorganisms real and significant; and demonstrate their importance in the problems of agriculture, general science, industry, public health, and medicine. This course is designed to accompany Bacteriology 31A, but may be elected without it. When elected separately this course will not satisfy the sophomore science requirement and cannot be offered as a prerequisite for other advanced courses in bacteriology.

2 class hours. Credit, 2.
2:00-2:50 M. F. or Tu. Th. Professor **Bradley.**

31A. (I) and (II) Introductory Bacteriology. Laboratory.—The work covers the use and care of the compound microscope, the preparation of culture media, methods of sterilizing equipment, the isolation and asceptic handling of pure cultures, simple and differential staining, bacterial classification and differential studies on type species of pathogenic and non-pathogenic bacteria. Designed to accompany Bacteriology 31.

2 2-hour laboratory periods. Credit, 2.

Professor BRADLEY.

Prerequisite, Bacteriology 31, previously or concurrently.

51. (I) 52. (II). ADVANCED BACTERIOLOGY.—A continuation of introductory bacteriology. Studies on bacterial metabolism and the influence of environmental factors on growth and viability. The identification and differentiation of bacterial species by morphological, cultural, physiological, and serological studies; disinfectants and antibiotics. The combined courses give to the student not only a comprehensive picture of various forms of existing bacteria but develop a specialized technique for their cultivation, isolation, and identification.

2 3-hour laboratory periods. Credit. 3.

Associate Professor GARVEY.

Prerequisites: For 51, Bacteriology 31A; for 52, Bacteriology 51.

81. (I) 82. (II) APPLIED BACTERIOLOGY.—These two courses covering a full year's work are designed to give the student a working knowledge of present-day applied bacteriology. The subjects receiving special consideration include principles of soil bacteriology; sanitary examination of water supplies and of shellfish; study of bacteriological principles which apply to preservation, fermentation, spoilage, and methods of sanitary examination of foods; methods for examining the sanitary quality of milk and milk products; the groups of bacteria normally present in milk and the factors which influence their development, and a consideration of the role of milk in the transmission of disease.

2 3-hour laboratory periods. Credit, 3.

Associate Professor GARVEY and Associate Professor FRANCE.

Prerequisite, Bacteriology 51 or permission of the instructor.

85. (I) BACTERIOLOGY (IMMUNOLOGY).—Admission by permission of the instructor. This course includes consideration of host reactions which favor the prevention and cure of disease; qualitative and quantitative estimations of toxins and antitoxins; the use of biological products such as antigens and immune sera in differential bacteriology and in disease diagnosis; and a consideration of isohemagglutinins as determinants of blood groups.

2 3-hour laboratory periods. Credit, 3.

Associate Professor GARVEY.

Prerequisite, Bacteriology 52.

90. (II) SANITARY BACTERIOLOGY.—A detailed study of public health laboratory methods. Practical application of methods will be made through field studies.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement.
Associate Professor FRANCE.
Prerequisite, Bacteriology 81.

92. (II) CLINICAL LABORATORY METHODS.—This course is designed for students majoring in medical technology. The purpose of the course is to familiarize the student with routine clinical laboratory procedures.

2 3-hour laboratory periods. Credit, 3.
Associate Professor FRANCE.
Prerequisites, Bacteriology 85; Physiology 32; Zoology 69.

Public Health

61. (I) 62. (II). GENERAL AND COMMUNITY SANITATION.—A study of the problems of general and community sanitation. Subjects discussed will include insect and rodent control, housing and slum clearance, ventilation, lighting, bathing places, sanitation of eating utensils, nuisances, camp sanitation, industrial hygiene, water supplies, sewerage and sewage, refuse and garbage, food and milk sanitation.

3 class hours. Credit, 3.
9:00-9:50 Tu. Th.; 12:00-12:50 F.
Professor BRADLEY and Assistant Professor PERRIELLO.

64. (II) MICROSCOPY OF WATER.—Admission by permission of the instructor. A study of plankton encountered in potable waters. Standard methods for their determination. Discussions on the distribution, significance, and numbers of species; the control of plankton populations.

1 class hour; 1 4-hour laboratory period. Credit, 3.
Hours by arrangement. Mr. SNOW.
Prerequisite, Bacteriology 31A.

74. (II) NEW ENGLAND MARKETS.—Individual and group study of the marketing of New England industrial and marketing enterprises.

3 class hours. Credit, 3.
THE DEPARTMENT.

84. (II) PUBLIC HEALTH ADMINISTRATION.—Admission by approval of the instructor. The organization, function, and administration of governmental health agencies; the relationship of official and volunteer health agencies; preparation and presentation of lectures, demonstrations, and exhibits. Public health laws, regulations, and sanitary codes, their origin and enforcement.

3 class hours. Credit, 3.
Hours by arrangement. Assistant Professor PERRIELLO.

86 (II) FIELD STUDIES IN SANITATION.—On six prearranged Saturdays during the semester, trips will be taken into the field for the observa-

tion of public health practices in sewerage; sewage treatment and disposal; the production and purification of public water supplies; housing and slum clearance; insect and rodent nuisances; milk production, handling, and distribution; garbage and refuse collection and disposal; slaughter houses and rendering plants; cold storage warehouses; and bakery and restaurant sanitation. A comparative study of urban and rural services will be made. Although transportation will be furnished, students are expected to finance their own meals.

1 4-hour laboratory period. **Credit, 2.**

Professor BRADLEY.

Prerequisites, Public Health 61 and 62.

88. (II) EPIDEMIOLOGY and COMMUNICABLE DISEASE CONTROL.—Admission by approval of the instructors. Consideration of the factors involved in the spread of infections; a detailed discussion of the communicable diseases, their distribution, cause, epidemiology, and means of prevention and control. The use of vaccines, serums and drugs for prevention and treatment. Mass immunization programs.

3 class hours. Credit, 3

8.00-8:50 M. W. F. Dr. LEE.

BOTANY

Professor OSMUN, Professor TORREY, Associate Professor Hodge,
Assistant Professor BANFIELD, Assistant Professor KOZLOWSKI
Mr. SPENCER

1. (I) and (II) INTRODUCTORY BOTANY.—The course sets forth a body of facts dealing with the morphology and physiology of plants which is not only a foundation for future professional work in biological science, but of intrinsic value to the educated layman. The topics of seed germination, ecological adaptations, floral structures, taxonomy, botanical history, cytology, wood-anatomy, plant physiology and plant reproduction receive appropriate elementary treatment. The lectures attempt to interpret the facts of plant structure and function in the light of the major biological principles.

2 class hours; 2 2-hour laboratory periods. Credit, 3.

Professor TORREY, Associate Professor HODGE, Mr. SPENCER,

25. (I) CRYPTOGAMIC BOTANY.—Selected forms typifying the slime-molds, bacteria, algae, fungi, lichens, liverworts, mosses and fernworts. The course has a two-fold purpose: (1) it is intended for students who desire to extend their knowledge to the principal branches of the plant kingdom, thus rounding out a general course of which Course 1 constitutes the first part; (2) it is also planned as an introduction to certain advanced courses for which it is prerequisite.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

Professor OSMUN, Mr. SPENCER.

Prerequisite, Botany 1.

26. (II) TAXONOMIC BOTANY.—Designed to acquaint the student with the local flora by a general study of the tracheate plants (lycopods, horsetails, ferns, gymnosperms, and angiosperms). Laboratory work will include the study of native trees and shrubs in the winter condition; the collection and identification of New England plants including the preparation of an herbarium of about 100 species. Competition for the Hills' Herbarium Prizes will be open to members of this course. Necessary materials for the course require the expenditure of approximately $8.

1 class hour; 2 2-hour laboratory periods. Credit 3.

Prerequisite, Botany 25.

Associate Professor HODGE, Professor OSMUN.

28. (II) PLANT PHYSIOLOGY.—Only for students intending to major in forestry. The processes occurring in plants with special emphasis on tree physiology and its relation to forestry problems.

3 class hours. Credit, 3

Assistant Professor KOZLOWSKI.

Prerequisite, Botany 25.

51. (I) PLANT PATHOLOGY.—A basic course in plant pathology dealing with the nature, cause and control of plant disease. Particular attention is given to disease symptoms, the phenomena of infection and of parasitism, the sources of inoculum, the agents of disease transmission, the relation of environment to disease incidence and development and to general principles of plant disease control. The laboratory phase is devoted to intensive study of a relatively few representative diseases induced by bacteria and the various classes of fungi.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

9:00-9:50 W.; 3:00-4:50 Tu. Th. Assistant Professor BANFIELD.

Prerequisite, Botany 25.

52. (II) ADVANCED PLANT PATHOLOGY (1948-49).—An extension of Course 51. The objective is that of providing the student with a general knowledge of the more common and representative plant disease problems. Students are granted the option in the laboratory of specializing in disease problems in their major field of interest. Given in alternate years.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

9:00-9:50 W.; 3:00-4:50 Tu. Th. Assistant Professor BANFIELD.

Prerequisite, Botany 51.

58. (II) MICROTECHNIQUE.—A course in the preparation of microscopic mounts including the celloidin and paraffin methods and involving the use of microtomes and of differential stains.

2 2-hour laboratory periods. Credit, 2.

1:00-2:50 Tu. Th. Professor TORREY.

Prerequisite, Botany 25.

59. (I) 60. (II) THE ANGIOSPERMS (1946-47).—Alternate with Courses 61 and 62. An evolutionary treatment of the angiosperm orders

and families largely from the standpoint of floral and fruiting structures. Fundamental to intelligent determinative and taxonomic work on seed plants. Laboratory studies on types from the most important plant families. The department herbarium and greenhouses supply material of important tropical forms.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 W. Professor TORREY.
Prerequisite, Botany 1.

61. (I) 62. (II) THE COMPARATIVE ANATOMY OF GREEN PLANTS (1947-48).—Alternate with Courses 59 and 60. The lectures deal with the comparative anatomy of green plants from the evolutionary standpoint. Particular emphasis is laid upon the woody forms both living and extinct. Of the latter, the department possesses excellent sets of micropreparations and lantern slides.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 W. Professor TORREY.
Prerequisite, Botany 25.

64. (II) SYSTEMATIC MYCOLOGY (1947-48).—Morphology and development of typical species representing the orders and families of fungi; practice in identification, collection, and preservation of fungi; systems of classification; collateral reading. Given in alternate years.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Tu.; 3:00-4:50 Tu. Th. Assistant Professor BANFIELD.
Prerequisite, Botany 25.

65. (I) SYSTEMATIC MYCOLOGY (1949-50). — A continuation of Course 64. Given in alternate years.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 F.; 3:00-4:50 M. F. Assistant Professor BANFIELD.

66. (II) INDUSTRIAL MYCOLOGY (1947-48).—Identification of the Common yeasts and molds used in the manufacture of industrial products. Study and laboratory exercises in the processes involved. Given in alternate years.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Th.; 3:00-4:50 M. F. Assistant Professor BANFIELD.

67. (I) 68. (II) INTRODUCTORY PLANT PHYSIOLOGY.—A study of the processes occurring in plants and their relation to the complex of activities constituting plant growth. Topics include colloidal systems, osmotic phenomena, absorption, transpiration, and internal water relations of plants, photosynthesis, fat and protein synthesis, digestion, translocation, respiration, and growth. This is a basic course for students planning for advanced work in any branch of plant science.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 3:00-4:50 M.; 2:00-3:50 W.
Assistant Professor KOZLOWSKI.
Prerequisites, Botany 25, Chemistry 29.

75. (I) METHODS IN PLANT PATHOLOGY (1948-49).—A course in the general techniques and specialized methods used in the investigation of plant diseases, including isolation, culture and pathogenicity studies of representative plant pathogenes, the preparation and sterilization of various culture media, elementary staining and histological techniques, the use of the microscope, study of fungicides, and training in elementary photographic procedures. Given in alternate years.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
2:00-2:50; 10:00-11:50 Tu.; 3:00-4:50 F.
Assistant Professor BANFIELD.
Prerequisite, Botany 51.

76. (II) PROBLEMS IN PLANT PATHOLOGY (1948-49).—Given in alternate years.

Hours by arrangement. Credit, 3.
Assistant Professor BANFIELD.
Prerequisite, Botany 51.

77. (I) 78. (II) PLANT PHYSIOLOGY (1949-50).—Advanced study in Physiology. Given in alternate years.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement. Assistant Professor KOZLOWSKI.
Prerequisites, Botany 67, 68; Chemistry 51, 52.

81. (I) PLANT ECOLOGY.—A survey of the general relationships of plants to their environment, including a study of the individual factors (autecology) and of plant communities (synecology). Special emphasis is placed on the structure and succession of plant communities in New England.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Associate Professor HODGE.
Prerequisite, Botany 1; Botany 26 recommended.

84. (II) THE FERNS (1947-48).—Intensive study of the morphology, life-history, and taxonomy of the fern plants, with especial attention to the fern flora of New England. Given in alternate years.

1 class hour; 1 2-hour laboratory period. Credit, 2.
1:00-1:50 Th.; 1:00-2:50 Tu. Professor OSMUN.
Prerequisite, Botany 25.

BUSINESS ADMINISTRATION

Professor GAMBLE, Professor HARDY, Assistant Professor SMART,
Assistant Professor COLWELL, Assistant Professor HOAR.
Mr. GRIFFIN.

ACCOUNTING

25. (I) PRINCIPLES OF BUSINESS ACCOUNTING.—This course aims to give the student a working knowledge of the principles underlying the

accounting system in the gathering, analysis, and interpretation of accounting data. The managerial uses of accounting as a means of business control are the keystone of the course.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
2:00-2:50 or 3:00-3:50 W.; 1:00-2:50 or 3:00-4:50 M. F.
Assistant Professors Colwell and Smart, Mr. Griffin.

26. (II) Principles of Business Accounting.—This course covers the problems of partnership and corporation accounting. Considerable time is spent on problems in amortization, depreciation, and the preparation, analysis and interpretation of financial statements.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
2:00-2:50 W.; 1:00-2:50 M. F.
Assistant Professors Colwell and Smart, Mr. Griffin.

71. (I) Advanced Accounting.—A fuller treatment of the accounting and financial problems of business units, including illustrative problems and case material.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor Smart.
Prerequisite, Accounting 26.

72. (II) Advanced Accounting.—A continuation of Accounting
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor Smart.
Prerequisite, Accounting 71.

73. (I) Cost Accounting.—The application of accounting techniques to industrial costs.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor Colwell, Mr. Griffin.
Prerequisite, Accounting 26.

74. (II) Accounting Systems.—The application of accounting principles to representative types of business and the study of Federal Income Tax and Social Security accounting problems.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Prerequisite, Accounting 73. Assistant Professor Colwell.

76. (II) Auditing.—A course in the interpretation of accounting records dealing with theory and procedure. C.P.A. and American Institute of Accountants examination problems are studied.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Prerequisite, Accounting 72, and 73. Assistant Professor Colwell.

BUSINESS LAW

70. (II) Business Law.—This course consists of a study of the drawing, reading, and interpretation of contracts and sales, with specific problem work. In addition, wills, commercial paper, carriers, real estate agency, public and personal rights are studied.

3 class hours. Credit, 3.
9:00-9:50 M. F. Assistant Professor Smart.

71. (I) LEGAL ASPECTS OF ECONOMIC TRANSACTIONS.—A continuation of Course 70.

3 class hours. Credit, 3.

Assistant Professor SMART.

Prerequisite, Business Law 70.

INDUSTRIAL ADMINISTRATION

83. (I) BUSINESS MANAGEMENT.—A study of the problems connected with the management of a business enterprise.

3 class hours. Credit, 3.

Professor GAMBLE, Assistant Professor HOAR.

84. PERSONNEL ADMINISTRATION.—A study of the principles of the management of labor relations.

3 class hours. Credit, 3.

Assistant Professor HOAR.

MARKETING

52. (I) INDUSTRIAL PURCHASING.—A study of the purchasing problems of industrial enterprises and their market contacts with their sources of supply.

3 class hours. Credit, 3.

The DEPARTMENT.

53. (I) MARKETING AND MARKETING PROBLEMS.—Not open to students who have taken or are taking Agricultural Economics 55. A study of the forces and conditions which determine prices and the mechanism, methods, and problems concerned with transporting, storing and distributing economic goods.

3 class hours. Credit, 3.

10:00-10:50 Tu. S.; 11:00-11:50 Th.

Professor HARDY.

51. (I) SALESMANSHIP AND SALES MANAGEMENT.—The principles and practices of selling and the management of selling enterprises.

3 class hours. Credit, 3.

Professor HARDY.

71. (I) RETAIL MERCHANDISING.—A study of the operation and productive functions of retail business.

3 class hours. Credit, 3.

Professor HARDY.

72. (II) MARKET RESEARCH.—The aims, sources and fact-gathering methods of market research activities. General study and individual research projects.

3 class hours. Credit, 3.

Professor HARDY.

73. (I) ADVERTISING.—A study of the techniques and media of advertising, its services to business and the organization and economic function of the advertising industry.
3 class hours. Credit, 3.
Professor HARDY.

74. (II) NEW ENGLAND MARKETS.—Individual and group study of the marketing problems of New England industrial and marketing enterprises. Credit 3.
3 class hours. THE DEPARTMENT.

CHEMISTRY

Professor RITCHIE, Professor FESSENDEN, Professor FREEMAN, Professor SMITH, Associate Professor CANNON, Assistant Professor RICHASON, Assistant Professor ROBERTS, Dr. PARROTT*

1. (I) 2. (II) GENERAL CHEMISTRY.—A study of the fundamental chemical laws and theories. A considerable amount of descriptive material will be included in connection with discussions of the periodic system, atomic structure, and in various applications of the principles. The object of the course is to give the student a sound scientific training through a course in chemistry. Students who have had no previous work in chemistry will be grouped together in laboratory and recitation sections so that they may have special attention. Offered for four credits at the University of Massachusetts at Fort Devens.
2 class hours; 1 quiz hour; 1 3-hour laboratory period. Credit, 3
1:00-1:50 M. F. or Tu. Th.; 3:00-3:50 M. Tu. Th. or F.; 2:00-4:50 M.
Tu. Th. or F. Professor FESSENDEN, Assistant Professor RICHASON.

29. (I) and (II) QUALITATIVE ANALYSIS.—A study of the fundamental principles and laws concerning the behavior of solutions of electrolytes. The laboratory work deals with the characteristic properties, reactions, and the systemic separation and identification of the common cations and anions. The semi-micro technique is used throughout for the analysis of salts, salt mixtures, and alloys. A considerable portion of the laboratory work is devoted to the identification of substances unknown to the student. This course is designed to meet the needs not only of those students specializing in chemistry, but also of those students specializing in other subjects where inorganic chemistry is of importance.
2 class hours; 6 laboratory hours. Credit, 4.
8:00-8:50 or 11:00-11:50 Tu. Th.; 8:00-9:50 or 10:00-11:50 M. W. F. or 1:00-3:50 M. F. or 1:00-3:50 Tu. Th. Professor SMITH.
Prerequisite Chemistry 2.

30. (I) and (II) QUANTITATIVE ANALYSIS.—The theory and practice of representative determinations, both gravimetric and volumetric. The laboratory work will include the gravimetric analysis of chloride, sulfate, and limestone, volumetric work with acids and bases, volumetric precipitation methods, and oxidation reduction tirations.
2 class hours; 2 3-hour laboratory periods. Credit, 4.
11:00-11:50 Tu. Th.; 1:00-3:50 M. F. or Tu. Th. or 1:00-3:50 W.; 9:00-11:50 S. Assistant Professor ROBERTS.
Prerequisite Chemistry 29.

31. (I) 32. (II) ORGANIC CHEMISTRY.—A short course intended to satisfy the requirements in this field for all students who do not specialize in chemistry.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 2:00-3:50 Th.

Professor RITCHIE.

Prerequisites, Chemistry 1 and 2.

51. (I) 52. (II) ORGANIC CHEMISTRY.—A course in the theory of organic chemistry intended to serve the needs of students who will specialize in chemistry, as well as those who may specialize in other fields where a more comprehensive course is desired than Chemistry 31 and 32. The first semester deals largely with compounds of the aliphatic series, while the benezene series is taken up in the second semester. Students electing this course should take both 51 and 52.

3 class hours; 1 3-hour laboratory period. Credit, 4.
9:00-9:50 M. W. F.; 1:00-3:50 M. W. or F.

Professor RITCHIE, Associate Professor CANNON.

Prerequisites, Chemistry 29.

63. (I) CHEMISTRY OF WATER, SEWAGE AND SEWAGE SLUDGE.—Admission by permission of the instructor. The preparation of reagents and standard methods for the analysis of water, sewage and sewage sludge. Lectures and discussions on the sanitary significance of analytical data.

2 3-hour laboratory periods. Credit, 3.
1:00-3:50W.; 9:00-11.50 S. ——————.
Prerequisite, Chemistry 30.

65. (I) 66. (II) PHYSICAL CHEMISTRY.—A study of the fundamental theories and laws of physical chemistry, together with the solution of problems involved in their application. The laboratory work will include practice in making physico-chemical measurements and the preparation of reports.

3 class hours; 1 3-hour laboratory period. Credit, 4.
11:00-11:50 M. W. F.; 1:00-3:50 M. W. or F.

Professors FESSENDEN and SMITH.

Prerequisites, Chemistry 30; Mathematics 30; Physics 26.

78 (II) ADVANCED PHYSICAL CHEMISTRY.—A detailed study of a number of topics such as kinetics, catalysis, chemical thermodynamics and electrochemistry.

3 class hours. Credit, 3.

Professor FESSENDEN.

Prerequisites, Chemistry 65 and 66.

79. (I) BIOCHEMISTRY.—An introduction to general biochemistry and physiological chemistry, with particular emphasis on the extension of fundamental organic chemistry to materials and processes of biological significance; proteins, lipids, carbohydrates, enzymes, etc. For students who

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* On leave of absence for military service.

expect to take up work in microbiology, botany, agronomy, nutrition, zoology, etc.

3 class hours; 1 3-hour laboratory period. Credit, 4.
Professor FREEMAN.

Prerequisite, Organic Chemistry.

80. (II) CLINICAL CHEMISTRY (Blood and Urine Analysis).—Work to be covered will include the collection and preparation of samples for analysis; standardization of glassware and the preparation of reagents; description of colorimeters and the determination of certain significant compounds in the samples. The latter group will include at least sugars, proteins, non-protein, nitrogen, fatty substances and inorganic elements.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor RITCHIE.

81. (I) ORGANIC CHEMISTRY.—A rapid and intensive discussion of the important types of carbon compounds, covering special topics in the theoretical organic chemistry as resonance, tautomerism, molecular rearrangement, etc. Recommended for students planning to take Chemistry 82.

3 class hours. Credit, 3.
Professor FREEMAN.

82. (II) QUALITATIVE ORGANIC CHEMISTRY.—An introduction to the theory, procedure and technique usually employed in the identification and characterization of organic compounds. In general, the work will include the purification and separation of unknowns from crude or complex mixtures; their identification by means of class reactions, preparation of derivatives, and determination of physical properties.

2 3-hour laboratory periods. Credit, 3.
1:00-3:50 M. F. Associate Professor CANNON.

83. (I) ADVANCED QUANTITATIVE ANALYSIS.—Designed primarily for chemistry majors, but open to others with permission of the instructor. The laboratory work will include representative determinations in electrolytic and electrometric methods; and an introduction to colorimetry and other optical methods of analysis. Selected topics in the use of organic precipitants, silicate analysis, analysis of steel and other alloys, fuels, oils, water, and gases will also be included.

2 class hours; 1-3 hour laboratory period. Credit, 3.
Assistant Professor ROBERTS.

Prerequisite, Chemistry 30.

85 (I) THEORETICAL INORGANIC CHEMISTRY.—A survey of inorganic chemistry which is largely theoretical and includes such topics as atomic structure, periodic classification and relationships, valence concepts, acid-base theory, and the chemistry of the commercially important elements and their compounds based upon the periodic table.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor SMITH.
Prerequisite, Chemistry 65.

86. (II) THEORETICAL CHEMISTRY.—Primarily for students specializing in chemistry; others may elect by permisison of the instructor. A knowledge of physical chemistry is desirable. The review of inorganic chemistry is largely theoretical and includes lectures on such topics as valence, Werner's coordination theory, crystal structure, and atomic structure.

3 class hours. Credit, 3.
Professor SMITH.
Prerequisite, Chemistry 65.

88. (II) HISTORY OF CHEMISTRY.—An historical and biographical study of chemistry and chemists. The aim of the course is: (1) to give the student a comprehensive view of the science as a whole, through a study of the development of new ideas and the establishment of new theories and laws; and (2) to arouse an enthusiastic interest in the subject and an appreciation of the true spirit of scientific research, through a sympathetic presentation of the work and lives of the great chemists who have been the creators of the chemistry of today.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor RITCHIE.

92. (II) INTRODUCTION RESEARCH.—Admission only by permission of the department. The aim of the course is to give the student an opportunity to learn the purpose and methods of research. To each student is assigned some special subject or problem in one of the following fields of chemistry, viz., analytical, biochemical, inorganic, organic, physical.

10 laboratory hours. Credit, 5.
Hours by arrangement. The DEPARTMENT.

94. (II) INDUSTRIAL CHEMISTRY.—The course aims to give the students some understanding of the uses and applications of reactions leading to the production of chemicals and chemical products by industry. Such topics as the production of the heavy chemicals, synthetic ntrogen products, commercial gases, metals, synthetic fibers, paper, etc. will be considered. New products and processes will be discussed. The equipment and the materials of industry will be included as an essential part of the discussion. Trips to near-by plants will be taken when possible.

3 class hours. Credit, 3.
Professor RITCHIE.
Prerequisites, Chemistry 51 and 30.

DAIRY INDUSTRY

Professor HANKINSON, Assistant Professor LINDQUIST, Assistant Professor NELSON, Mr. FINNEGAN, Mr. LARKIN

25. (I) GENERAL DAIRYING.—A general course, introductory to all other courses in dairy industry, for those who wish to take only one course in dairying to get a general knowledge of the subject. The work covers briefly: a study of milk, its secretion, composition, and various tests

applied thereto; methods of pasteurizing and handling milk and cream; the use of separators; elements of ice cream, butter, and cheese making.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 9:00-10:50 W. or 1:00-2:50 W. or 3:00-4:50 W.
Assistant Professor LINDQUIST, Mr. LARKIN.

50. (II) JUDGING DAIRY PRODUCTS.—A study of market standards and grades of dairy products, with practice in judging milk, ice cream, butter, and cheese. The student learns to recognize quality in dairy products, to detect specific defects, and to know their causes and means of prevention. A team is chosen from this class to represent the College in dairy products judging contests at the Eastern States Exposition and the National Dairy Industries Exposition.

1 2-hour laboratory period. Credit, 1.
1:00-2-50 F. Assistant Professors LINDQUIST and NELSON.

52. (II) MARKET MILK.—A study of the various phases of the market milk industry; sanitary production, transportation, pasteurization and handling in the city plant; marketing, delivery systems, milk and its relation to public health, inspection, milk laws, food value, and advertising. Cultured milk and other milk drinks also are included. Some milk plants are visited, the cost of the trip not exceeding five dollars.

2 class hours; 2 2-hour laboratory periods. Credit, 4.
8:00-8:50 Tu. Th.; 3:00-4:50 M. F. or 8:00-9:50 Tu. Th.
Assistant Professor LINDQUIST, Mr. FINNEGAN.

75. (I) DAIRY CHEMISTRY.—The various physical and chemical properties of milk, milk products, and their components are studied. Testing and control methods commonly used commercially for milk and dairy products are included; moisture and fat determination, casein, salt, and acid tests, work with the Mojonnier apparatus, and other applied chemical tests are taken up in the laboratory.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-10:50 Tu.; 8:00-9:50 Th. Assistant Professor NELSON.

77. (I) BUTTER AND CHEESE MAKING.—The first half of the semester is devoted to butter making; the remainder to cheese making, condensed and powdered milk. The various phases of the butter industry studied are: separators and cream separation; pasteurization, neutralization, and ripening of cream; preparation of starter cultures; churning; marketing, and scoring of butter; creamery management. The work in cheese making includes Cheddar, cream Neufchatel, cottage, processed cheeses, etc. The manufacture of condensed and powdered milk, and commercial casein is also covered.

2 class hours; 2 3-hour laboratory periods. Credit, 4.
11:00-11:50 W. F.; 1:00-3:50 M. F.
Prerequisite, Dairy 25. Assistant Professors LINDQUIST and NELSON.

78. (II) ICE CREAM MAKING.—The course includes a study of the principles and practices of ice-cream making. The effects of such factors as composition, quality, pasteurization, homogenization, aging, and freezing

on the finished product are considered. Sherbets, ices, fancy and individual forms, and all flavors of ice cream are studied. Some time is devoted to refrigeration machinery, delivery equipment, and merchandising methods as they are related to the industry.
2 class hours; 2 3-hour laboratory periods. Credit, 4.
11:00-11:50 W. F.; 1:00-3:50 Tu.; 2:00-4:50 Th.
Assistant Professor NELSON, Mr. LARKIN.

79. (I) 80. (II) SEMINAR.—For students specializing in dairy industry.
1 class hour. Credit, 1.
11:00-11:50 M. Assistant Professor LINDQUIST.

ECONOMICS

Professor GAMBLE, Associate Professor KRAVIS, Associate Professor MORRIS, Assistant Professor SMART, Assistant Professor HALLER, Assistant Professor FERWERDA, Assistant Professor COLWELL, Assistant Professor HOAR, Mr. GERHARDT, Mr. GOODWIN, Mr. FARBER, Mr. PINES.

11. (I) ECONOMIC GEOGRAPHY.—A study of the geographic distribution of natural and human resources and the economic and physiographic bases of agriculture, manufacturing, and allied industries.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor HOAR.

12. (II) ECONOMIC HISTORY OF THE UNITED STATES.—A study of the significant factors in the economic development of the nation.
3 class hours. Credit, 3.
Assistant Professor HALLER.

25. (I) and (II) ELEMENTS OF ECONOMICS.—Definitions and introductory principles of production, exchange, and the financial organization of society, with a short survey of the economics of distribution and the use of wealth and income. Credit, 3.
3 class hours. The DEPARTMENT.

26. (II) ELEMENTS OF DISTRIBUTION.—A continuation of Course 25 with emphasis on the study of wealth and income distribution.
3 class hours. Credit, 3.
Professor GAMBLE, Associate Professor KRAVIS, Mr. PINES.
Prerequisite, Economics 25.

51. (I) ECONOMICS OF BUSINESS AND INDUSTRY.—A study of the industrial relationships and the principles upon which the production of economic goods is based, with particular emphasis upon administrative controls of cost, quality, quantity, standards, personnel and purchasing.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor COLWELL.

53. (I) MONEY, BANKING, AND CREDIT.—A critical survey of the development and operation of the monetary and banking systems of the United States.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S.
Professor GAMBLE, Associate Professor KRAVIS, Mr. GERHARDT.

57. (I) CORPORATION FINANCE.—Types of business organization and their essential features; the nature and growth of the corporation and its economic and social significance; types of securities used for raising capital; promotion; financial structure of various types of concerns; administration of income; control; holding company finance; corporate failure and reorganization are considered.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor COLWELL.

55. (I) ECONOMICS OF CONSUMPTION.—A study of patterns of consumption, standards of living and the sources and expenditure of individual and family incomes.
3 class hours. Credit, 3.
Assistant Professor HALLER.

56. (II) BUSINESS CYCLES.—A study of business fluctuations and an analysis of current business cycle theories.
3 class hours. Credit, 3.
Professor GAMBLE.

70. (II) MONOPOLIES (1948-49).—A study of the growth, development, and social control of monopolies. Given in alternate years.
3 class hours. Credit, 3.
Assistant Professor HALLER.

73. (I) MODERN ECONOMIC THEORY.—A study of current theories about value, distribution and prices.
3 class hours. Credit, 3.
Associate Professors KRAVIS and MORRIS, Mr. PINES.

74. (II) CURRENT ECONOMIC PROBLEMS.—An advanced course for those desirous of studying more intensively some current economic problems. Students will be encouraged to pursue lines of individual interest.
3 class hours. Credit, 3.
Mr. GERHARDT.

76. (II) PRINCIPLES OF TRANSPORTATION.—The development of highway, waterway, and railway transportation, and its relation to the agricultural and industrial development of the country; the principles governing the operation and control of transportation agencies; present-day problems relating to the shipment of farm and industrial products, rates, facilities, and services; methods of reducing wastes in transportation; the economics of the good roads movement and of motor transportation.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor HALLER.

77. (I) ECONOMICS OF INTERNATIONAL TRADE (1949-50).—A study of the policies, principles, and practices of international trade. Given in alternate years.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor HALLER.

78. (II) PUBLIC FINANCE
Principles of public revenues and expenditures with special emphasis on the systems and problems of taxation.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor GAMBLE.

79. (I) LABOR PROBLEMS.—An analysis of the background and character of the modern labor problem with special references to the United States. Topics to be considered include: the problems of wages, hours, working conditions and unemployment; the trade union movement; and some agencies for the promotion of industrial peace.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S.
Associate Professor MORRIS, Assistant Professor HOAR.

80. (II) LABOR LEGISLATION.—A study of federal and state legislation affecting labor.
3 class hours. Credit, 3.
Associate Professor MORRIS, Assistant Professor HOAR.

91. (I) 92. (II) SEMINAR.—Research in economic theory; problems of labor, commerce, and industry. If desirable, some other economic study may be substituted.
1 or 2 2-hour conferences. Credit, 1 to 3.

Political Science

28. (II) STATE AND LOCAL GOVERNMENT.—A survey of the governmental structure and functions of the American state and its local governments, with emphasis on state-local relationships.
3 class hours. Credit, 3.
Assistant Professor FERWERDA, Mr. FARBER.

61. (I) PUBLIC ADMINISTRATION.—A general survey of the field of public administration. Special emphasis will be placed on the principles of organization, the functions performed by administration, and the relation of administration to democracy.
3 class hours. Credit, 3.
Mr. GOODWIN.

62. (II) ADMINISTRATIVE LAW.—A study of government regulatory activities in relation to industry, agriculture, and labor, with emphasis on the legal framework within which these activities operate.
3 class hours. Credit, 3.
Mr. GOODWIN.

63. (I) POLITICAL PARTIES AND ELECTIONS.—A study of the political process, and the nature and history of parties, pressure groups, nominations and elections.
3 class hours. Credit, 3.
Mr. FARBER.

64. MUNICIPAL GOVERNMENT.—A survey of the governmental structure and function of American municipalities. Special attention is given

to administrative problems arising from such functions as protection, education, welfare, correction, city planning and zoning.
3 class hours. Credit, 3.
Mr. GOODWIN.

65. CONSTITUTIONAL LAW.—An historical study of the fundamental rights and guarantees under the American Constitution as interpreted by decisions of the Supreme Court.
3 class hours. Credit, 3.
Mr. GOODWIN.

66. (II) AMERICAN POLITICAL THOUGHT.—A study of the development of American political thought from colonial times to the present, with emphasis upon writings of the period.
3 class hours. Credit, 3.
Mr. FARBER.

67. (I) INTERNATIONAL GOVERNMENT.—A study of international organization in the twentieth century, with emphasis upon the League of Nations, the World Court, and the United Nations and its affiliated agencies.
3 class hours. Credit, 3.
Assistant Professor FERWERDA.

68. (II) INTERNATIONAL LAW.—A study of the origin, character, and function of international law.
3 class hours. Credit, 3.
Assistant Professor FERWERDA.

93. (I) 94. (II) SEMINAR.—A study of special problems in the field of government. For seniors only.
3 class hours. Credit, 3.
Assistant Professor FERWERDA.

EDUCATION

Professor PURVIS, Assistant Professor OLIVER, Assistant Professor ROURKE, Mr. TAFT[1], Mr. DAYTON.

51. (I) PRINCIPLES AND METHODS OF TEACHING.—By means of discussion, case studies, and current educational literature, teaching ideals and procedures are set up. Application of the general principles are made in the major fields represented by the class.
3 Class hours. Credit, 3.
9:00-9:50 or 11:00-11:50 M. W. F.
Professor PURVIS and Assistant Professor OLIVER.

52. (II) METHODS OF EXTENSION TEACHING.—For juniors and seniors specializing in the divisions of agriculture, horticulture, and home economics. The course considers opportunities and objectives of extension workers; development of extension programs to meet community and regional problems from a national, state, and local point of view; the

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[1] State Supervisor for Agricultural Teacher-Training representing the State Department of Education in the administration of vocational agriculture acts.

evaluation of results; use and development of leaders; and methods used in extension work.

2 class hours; 12-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; laboratory hours by arrangement.
Mr. DAYTON and EXTENSION STAFF.

53. (I) EDUCATIONAL TESTS AND MEASUREMENTS.—The most serviceable tests and scales for measuring achievement are considered; test construction, administration, scoring, and interpretation of results are studied and practiced. Considerable attention is given to preparation of informal tests for diagnostic and grading purposes.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 Tu. or Th.
Assistant Professor ROURKE.

72. (II) VOCATIONAL EDUCATION IN AGRICULTURE.—The course demands certain prerequisites of experience and a definite objective on the part of the student to enter the field of vocational agricultural teaching which makes it necessary for the student to seek permission to enter the course. It is the first of the series of special courses (72, 73, 75) required of candidates for the vocational agricultural teacher-training certificate. A survey of vocational education and an introduction to teaching of vocational agriculture at the secondary school level is the basis of the course. Certain information and observations in preparation for the apprenticeship course are offered.

3 class hours. Credit, 3.
10:00-10:50 M. W. F.
Assistant Professor OLIVER and VOCATIONAL DIVISION
of STATE DEPARTMENT OF EDUCATION.

73. (I) and (II) APPRENTICE TEACHING IN AGRICULTURE.—For a limited number of qualified candidates in vocational education. A full year in absentia normally following the junior year in college, teaching agriculture, horticulture, and related subjects. Candidates should have completed the course in Education 72, and in Education 51 if possible, and must apply early to the instructor of the course.

Maximum credit, 6.
Assistant Professor OLIVER and VOCATIONAL DIVISION
of STATE DEPARTMENT OF EDUCATION.

75. (I) TECHNIQUE OF TEACHING VOCATIONAL AGRICULTURE.—By arrangement with the instructor. Preferably this course should follow Courses 72 and 73. It covers the materials, methods, policies, and special requirements of Massachusetts for teaching agriculture and related subjects in high schools and special country schools. This is one of three courses required of candidates for the agricultural teacher-training certificates.

3 class hours. Credit, 3.
9:00-9:50 M. W. F.
Assistant Professor OLIVER and VOCATIONAL DIVISION
of STATE DEPARTMENT OF EDUCATION.

80. (II) HISTORY OF EDUCATION.—This course opens a long vista in the development of one very important human endeavor—the passing on to succeeding generations of the accumulated social heritage of the race. Social, cultural, and educational movements are traced from early Greece to the present with the aim of better understanding of modern education.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor PURVIS

81. (I) COMPARATIVE EDUCATION.—A course of general cultural and citizenship value in which educational history, philosophy, system, administration, and finance of at least six foreign countries will be compared step by step with the same items in the United States.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor ——.

83. (I) THE PRINCIPLES OF SECONDARY EDUCATION.—This course presents a picture of the secondary school as a social agency, its relation to elementary and collegiate education, its aims, organizations, administration, curriculum procedures, and such other phases as are necessary to acquaint the layman with this predominant level of our educational ladder.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor ROURKE.

85. (I) and (II) OBSERVATION and PRACTICE TEACHING.—An opportunity to do regular teaching in cooperating high schools within commuting distance of the College. The student works under the supervision of a teacher with frequent visits from some member of the staff.
Credit, 3.
The DEPARTMENT.

88. (II) THE SCHOOL CURRICULUM (1946-47).—This course discusses the curriculum of schools of this country from the point of view of the general social philosophy which created it. It seeks to make clear to the layman the various controversial issues regarding such concepts as progressive education, the core-curriculum, the experience curriculum, projects, etc., and to present a common-sense method of analysis of such controversies and of evaluation in the light of their stated philosophy. Given in alternate years.
3 class hours. Credit, 3.
10:00-10:50 Tu. or Th.; 1:00-2:50 Tu. or Th.
Assistant Professor ROURKE.

90. (I) EVALUATION OF LEARNING.—Only for seniors taking the One-Semester Plan. Tests and scales for measuring ability and achievement; standard tests and interpretation of results; construction of informal tests for diagnostic and grading purposes.
3 2-hour periods the first and each alternate week. Credit, 3.
Assistant Professor ROURKE.

91. (I) SECONDARY SCHOOL CURRICULUM.—Only for seniors taking the One-Semester Plan. A consideration of learning material and its organization in the subjects which these students are teaching and the preparation of detailed courses of study in those fields in the light of

accepted educational practice. Attention will be given to the best measures for evaluating the outcome of instruction in those fields.

3 2-hour periods the first and each alternate week Credit, 3.
Assistant Professor Rourke.

92. (I) Methods and Management.—Only for seniors taking the One-Semester Plan. The basic principles underlying all teaching and the procedure in the most approved methods will be discussed and illustrated. The aim of the course is to provide the trainee with a solid pedagogical basis for his own experimental efforts at teaching so that he may note the things that are important for effective class handling and instruction.

3 2-hour periods the first and each alternate week. Credit, 3.
Professor Purvis.

93. (I) The Secondary School.—Only for seniors taking the One-Semester Plan. Practical problems concerning the school as a social agency, its aims, characteristics of pupil population, program of study, guidance, extra curriculum, social pressure, etc., from the point of view of situations met by teachers.

3 2-hour periods the first and each alternate week. Credit, 3.
Assistant Professor Rourke.

94. (I) Practice Teaching.—Only for seniors taking the One-Semester Plan. Five school days of teaching each alternate week in neighboring secondary schools under supervision of competent teachers and members of the staff.

The second and each alternate week. Credit, 5.
The Department.

AGRICULTURAL ENGINEERING

Associate Professor Markuson, Assistant Professor Tague, Assistant Professor Pushee, Assistant Professor Beck

71. (I) Mechanical Power (Internal Combustion Engines).—The course considers the theory and operation of gasoline and diesel engines and their accessories. Principal stress will be upon maintenance and efficient use of mechanical power.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor Tague.
Prerequisites, Civil Engineering 52; Mechanical Engineering 65, 68.

72. (II) Drainage and Irrigation Engineering.—This course is an abridgment of Agricultural Engineering 78 for students not majoring in Engineering who do not have the prerequisites for Course 78.

1 class hour; 1 2-hour laboratory period. Credit, 2.
Associate Professor Markuson.

73. (I) Farm Structures.—A study of the strength and durability of building materials, construction systems and the mechanical principles underlying their use in farm-construction. In the drafting room studies

will be made of some major farm building and complete working drawings finished in all essential details.
1 class hour; 3 2-hour laboratory periods. Credit, 4.
Associate Professor MARKUSON.
Prerequisites, Civil Engineering 34, 51; Mechanical Engineering 61.

74. (II) FARM STRUCTURES.—This course is an abridgment of Agricultural Engineering 73 for students not majoring in Engineering who do not have the prerequisites for Course 73.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Associate Professor MARKUSON.

76. (II) MECHANICAL FARM EQUIPMENT.—The course deals with problems in operation of farm machines. Design, construction, maintenance and safety of farm equipment will be stressed.
1 class hour; 1 2-hour laboratory period. Credit, 2.
Assistant Professor TAGUE.
Prerequisites, Civil Engineering 52; Mechanical Engineering 68; Electrical Engineering 61, 62.

78. (II) DRAINAGE AND RECLAMATION ENGINEERING.—The course covers the engineering phase of drainage and reclamation. The various systems are studied, complete layouts established in the field, and problems of flow, run-off and platting given.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Associate Professor MARKUSON.
Prerequisites, Civil Engineering 25, 75 or 76; Agronomy 2.

80. (II) FOOD PROCESS ENGINEERING.—A study of food processing machinery, steam boilers, evaporators, pumps, refrigeration machinery, and heat controlling devices. The course deals with problems of heat transfer in foods and processing equipment.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor TAGUE.

83. (I) 84. (II) AGRICULTURAL ENGINEERING PROBLEMS.—Open only to seniors specializing in agricultural engineering. This course consists of individual problems chosen by the students under guidance of the department. The work is of an advanced nature, supplementing that of the regular agricultural engineering curriculum. Copy of project outline, indicating the number of credits, must be filed with the department and with the Dean at the opening of the semester.
Hours by arrangement. Credit, 3.
The DEPARTMENT.

85. (I) RURAL ELECTRIFICATION.—This course is planned primarily for students who are interested in the application of electricity to agriculture. It includes a study of the generation and distribution of electricity for light and power. Special emphasis is placed on the utilization of electricity on the farm and in rural communities.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. The DEPARTMENT.

LIGHT BUILDING CONSTRUCTION

2. (II) Shades, Shadows and Perspective.—For students in light building construction. This work is to supply the student with the elements of architectural drafting including simple projections and the development of sections and details.
3 2-hour laboratory periods. Credit, 3.
Associate Professor Markuson.

22. (II) Construction Shop.—This course deals with framing details of light building construction. Methods and materials used in joining and connecting materials of construction will be covered.
1 class hour; 2 3-hour laboratory periods. Credit, 3.
Assistant Professors Beck and Pushee.

50. (II) Exterior and Interior Finish.—For students in light building construction. The work covers the adaptation and utilization of mill work, metal, plywood, and composition sheets, building hardware, plaster, paint, and items of builders' supplies peculiar to light building construction.
3 class hours. Credit, 3.
Associate Professor Markuson.

51. (I) House Planning.—Plan designs of the small house will be made. The arrangement of interior equipment, especially in the kitchen, and lighting, heating, water supply, and sewage disposal will be studied, together with a brief history of the house materials, construction methods, equipment, and architectural styles. Consideration will be given to the economics of house building, including financing and to maintenance and overhead expense.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Th.; 1:00-2:50 W.; 8:00-9:50 S.
Associate Professor Markuson.

CIVIL ENGINEERING

Professor Marston, Professor White, Assistant Professor Osgood, Assistant Professor Hendrickson.

25. (I) Surveying.—The theory of surveying, description of field and office methods and procedure are given in the classroom. Topics covered are the use of the tape, transit, level, plane table, determination of latitude, longitude, and azimuth, principles of more precise measurements, and the elements of geodesy. The field and office work covers measurements and the plotting necessary for producing finished maps of small areas.
3 class hours; 2 3-hour laboratory periods. Credit, 5.
Assistant Professors Hendrickson and Osgood.
Prerequisite, Mathematics 5.

26. (II) Route Surveying.—The principles of location, curves and earthwork, and horizontal and vertical control nets for highways, railroads, pipe lines, and transmission lines are considered.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Assistant Professor Hendrickson.
Prerequisites, Civil Engineering 25 or 27.

27. (I) PLANE SURVEYING.—The basic principles of mensuration are discussed in class. Instruction and problems involving the use of the tape, transit and level are given in the field, and the preparation of a map of a small area is carried out in the drafting room. This course is not open to civil engineering students.
1 class hour; 1 3-hour laboratory period. Credit, 2.
Assistant Professor HENDRICKSON.
Prerequisite, Mathematics 2 or 3.

28. (Summer) PROPERTY AND TOPOGRAPHIC SURVEYING.—This practice course consists of a transit and tape property survey in which reference to Registry of Deeds records is used, a plane table topographic survey of selected areas is made. Certain topics of advanced surveying and photogrammetry are treated briefly as they relate to the course.
3 44-hour weeks. Credit, 3.
Assistant Professors HENDRICKSON and OSGOOD.
Prerequisite, Civil Engineering 25 or 27.

30. (Summer) ROUTE SURVEYING PRACTICE.—This practice course consists of a short route survey for which preliminary maps and a location survey, earthwork quantities and cost estimates are prepared.
3 44-hour weeks. Credit, 3.
Assistant Professors HENDRICKSON and OSGOOD.
Prerequisite, Civil Engineering 26.

34. (II) APPLIED MECHANICS (STATICS).—The following topics are considered in the study of statics; colinear, concurrent, non-concurrent and parallel force systems in a plane and in space; static friction problems; first and second moments. The free-body method of analysis is emphasized. Algebraic and graphical solutions are determined.
3 class hours. Credit, 3.
Professor MARSTON.
Prerequisites, Physics 26; Mathematics 31.

51. (I) STRENGTH OF MATERIALS.—The following topics are considered: elementary stresses and strains; combined stresses; riveted joints; torsion; shear and bending moments; stresses and deflections in beams; statically indeterminate beams; columns.
4 class hours. Credit, 4.
Professor WHITE.
Prerequisites, Civil Engineering 34; Mathematics 32.

52. (II) APPLIED MECHANICS (Kinetics).—This is a continuation of Civil Engineering 34 into the field of kinetics. It includes linear and angular motion, concerned with the engineering applications of the fundamental principles of mechanic impulse and momentum, and work, energy and power.
3 class hours. Credit, 3.
Professor WHITE.
Prerequisites, Civil Engineering 34; Mathematics 32.

53. (I) STRENGTH OF MATERIALS.—This is an abridgment of Civil Engineering 51.
3 class hours. Credit, 3.
Professor WHITE.
Prerequisites, Civil Engineering 34; Mathematics 32.

55. (I) HIGHWAY ENGINEERING.—The design features of highway construction and relative merits of various types of highway surfaces are discussed in class. Plans, profiles, cross sections, and specifications for a short section of highway are prepared.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Assistant Professor HENDRICKSON.
Prerequisites, Civil Engineering 26, 30 or permission of instructor.

56. (II) TRANSPORTATION ENGINEERING.—A study of the basic principles of highway, railroad, water and air transportation. Operational requirements, economics of location, administration and finance, design considerations, and maintenance.
3 class hours. Credit, 3.
Assistant Professor HENDRICKSON.
Prerequisite, Civil Engineering 55.

70. (II) THEORY OF STRUCTURES.—This course treats with the analysis of statically determinate structures of wood and steel, with reference to particular structures, such as industrial and office buildings, highway and railway bridges. The use of influence lines in the study of movable loads is included.
3 class hours; 1 3-hour laboratory period. Credit, 4.
Assistant Professor OSGOOD.
Prerequisite, Civil Engineering 51.

71. (I) STRUCTURAL DESIGN.—This course is an application of the theory of structures to engineering practice through the preparation of designs and drawings for structural frames, girders and trusses in steel and wood that together make up a complete building frame or bridge. Emphasis is placed upon the design of structural members and joints.
1 class hour; 2 3-hour laboratory periods. Credit, 3.
Assistant Professor OSGOOD.
Prerequisite, Civil Engineering 70.

72. (II) ADVANCED STRUCTURAL THEORY.—The analysis and design of continuous beams and trusses, rigid frames, arches, and tall buildings are considered in this course. Statically indeterminate methods of finding stresses and deflections are used.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Assistant Professor OSGOOD.
Prerequisite, Civil Engineering 71.

73. (I) CONCRETE AND MASONRY.—A study of the general properties of plain and reinforced concrete is included in this course. Application is made to the design of beams, slabs, columns, walls and foundations for buildings; retaining walls, arches and bridges. Drawings are prepared for a reinforced concrete building. A study is made of the elements of

masonry construction and the use of bricks, concrete units and bearing tile in building construction.

2 class hours; 2 3-hour laboratory periods. Credit, 4.

Assistant Professor OSGOOD.

Prerequisite, Civil Engineering 51.

75. (I) FLUID MECHANICS.—This course is an abridgment of Civil Engineering 76.

2 class hours; 1 3-hour laboratory period. Credit, 3.

Professor MARSTON.

Prerequisites, Physics 26; Mathematics 32; Civil Engineering 52.

76. (I) and (II) FLUID MECHANICS.—The following topics are considered: properties of fluids, gas laws, viscosity, static pressure, gages, buoyant forces, dynamics of fluids, Bernoulli's theorem, flow in pipes, orifices, nozzles, weirs, and open channels. Hydraulic similitude is also discussed.

3 class hours; 1 3-hour laboratory period. Credit, 4.

Professor MARSTON.

Prerequisites, Physics 26; Mathematics 32; Civil Engineering 52.

77. (I) WATER SUPPLY.—This course considers the engineering aspects of public water supply systems and includes the following topics: quantity of water required; hydrology; collection systems; distribution systems; pumping machinery; purification work.

3 class hours; 1 3-hour laboratory period. Credit, 4.

Professor MARSTON.

Prerequisite, Civil Engineering 76 or 75 concurrently.

3 class hours. Credit, 3.

Professor MARSTON.

Prerequisite, Civil Engineering 77.

78. (II) SANITARY ENGINEERING (SEWERAGE).—This course considers the engineering aspects of the design, construction, and maintenance of sewerage systems and includes the following topics: hydraulics of sewers, sanitary and storm sewers, sewage treatment, plant design and operation.

3 class hours. Credit, 3.

Professor MARSTON

Prerequisite, Civil Engineering 77.

80. (II) SOIL MECHANICS.—This course is a study of the mechanical classification of soils based upon field and laboratory work and the validity of these classifications as a means of predicting soil behavior. The student is guided through case studies in embankment stability, seepage, and consolidation.

2 class hours; 1 3-hour laboratory period. Credit, 3.

Assistant Professor HENDRICKSON.

Prerequisite, Geology 50.

81. (I) Foundations.—A survey of modern theories and practice in transferring structural loads to earth masses. Pile foundations, spread footings, caissons, and buoyant systems are discussed.
2 class hours. Credit, 2.
Assistant Professor Hendrickson.
Prerequisite, Civil Engineering 80.

90. (II) Contracts, Specifications and Estimating.—A study of the essentials of contracts as applied to business procedures in the construction field, the purposes and make-up of specifications, and the processes of estimating through quantity surveys and unit cost applications.
3 class hours. Credit, 3.
Associate Professor Markuson.

92. (II) Professional Seminar.—For seniors majoring in civil engineering. Current engineering projects are described by student reports. The professional aspect of the civil engineer's work is stressed.
1 class hour. Credit 1.
The Department.

94. (II) Advanced Surveying.—The following topics are included: elements of astronomy, precise methods of surveying, adjustment of observations and the elements of aerial surveying.
2 class hours. 1 3-hour laboratory period. Credit, 3.
Assistant Professor Hendrickson.
Prerequisites, Civil Engineering 25, 28.

96. (II) Hydraulic Engineering.—The analysis and design of hydrualic structures such as storage reservoirs, spillways, dams, levees, and shore protection and channel works are considered.
2 class hours. 1 3-hour laboratory period. Credit, 3.
Professor Marston.
Prerequisites, Civil Engineering 71, 73, 76.

ELECTRICAL ENGINEERING

Professor Brown, Associate Professor Wilson, Assistant Professor Langford, Mr. Sachse, Mr. Mohn

40. (II) Fundamentals of Electrical Engineering.—This course is a study of the fundamental concepts of electricity including units, basic laws and applications to direct-current circuits, magnetism and electromagnetism, magnetic circuits in air and iron, induced voltages and inductance, generated voltages, capacitance, conduction in liquids and gases and batteries.
2 class hours. 1 3-hour laboratory period. Credit, 3.
Professor Brown, Mr. Sachse.
Prerequisites, Mathematics 31; Physics 26.

51. (I) Alternating-current Circuits.—This course is a study of alternating currents in power and communication circuits. Subjects included are instantaneous relationships between electrical quantities, vec-

tor representation, sinusoidal and non-sinusoidal waves, single-phase and polyphase circuits, coupled circuits, power and power measurements, basic networks and filters.
3 class hours. Credit, 3.
Assistant Professor LANGFORD, Mr. MOHN.
Prerequisite, Electrical Engineering 40.

53. (I) DIRECT-CURRENT MACHINERY. — Direct-current generators and motors are studied with respect to their characteristics, design, operation and applications. Special types of direct-current machines and control devices are also included in the course.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Associate Professor WILSON, Mr. SACHSE.
Prerequisite, Electrical Engineering 40.

54. (II) ALTERNATING-CURRENT MACHINERY.—This course is a study of alternating-current generators, motors, transformers and converters with respect to their design, operation, control and applications.
3 class hours; 1 3-hour laboratory period. Credit, 4.
Associate Professor WILSON, Mr. SACHSE.
Prerequisites, Electrical Engineering 51, 53.

57. (I) DIFFERENTIAL EQUATIONS AND VECTOR ANALYSIS.—This course continues the treatment of differential equations begun in Mathematics 32 and proceeds to a study of the algebra and calculus of vectors with specific applications to electric and magnetic fields.
2 class hours. Credit, 2.
Assistant Professor LANGFORD, Mr. MOHN.
Prerequisite, Mathematics 32.

61. (I) PRINCIPLES OF ELECTRICAL ENGINEERING.—This course is an abridgment of Courses 40 and 53 for mechanical engineering students.
3 class hours; 1 3-hour laboratory period. Credit, 4.
Assistant Professor LANGFORD, Mr. MOHN.
Prerequisites, Physics 26; Mathematics 32.

62. (II) PRINCIPLES OF ELECTRICAL ENGINEERING.—This course is an abridgment of Courses 51 and 54 for mechanical engineering students.
3 class hours; 1 3-hour laboratory period Credit, 4.
Assistant Professor LANGFORD, Mr. MOHN.
Prequisite, Electrical Engineering 61.

63. (I) ELEMENTS OF ELECTRICAL ENGINEERING.—This is a brief course covering electrical circuits and machines, for civil engineering students.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Associate Professor WILSON, Mr. SACHSE.
Prerequisites, Physics 26; Mathematics 32.

65. (I) INDUSTRIAL ELECTRICITY.—This course is designed for mechanical engineering students and covers applications of electric machines and devices, motor selection and control, protective devices and electrical

and electronic applications to measurements and control of production processes.

1 class hour; 1 3-hour laboratory period. Credit, 2.
Assistant Professor LANGFORD.
Prerequisite, Electrical Engineering 62.

74. (II) ELECTRONICS.—This course includes the study of electron motion in electric and magnetic fields, basic electron optics, electron tubes and their characteristics, rectifiers and amplifiers through Class A applications.

2 class hours; 1 3-hour laboratory period. Credit, 3.
Professor BROWN, Mr. MOHN.
Prerequisite, Electrical Engineering 51.

75. (I) APPLIED ELECTRONICS.—This is a continuation of Course 74 and includes a study of electron tubes in power amplifiers, oscillators, control circuits and special applications.

2 class hours; 1 3-hour laboratory period. Credit, 3.
Professor BROWN, Mr. MOHN.
Prerequisite, Electrical Engineering 74.

77. (I) ELECTRICAL TRANSMISSION.—This course covers the study of transmission methods and circuits, including circuits with distributed constants, by exact and approximate methods. Traveling waves, reflections, matching, power relations, artificial lines and networks and measurements are included.

3 class hours. Credit, 3.
Associate Professor WILSON, Mr. SACHSE.
Prerequisite, Electrical Engineering 51.

78. (II) ELECTRIC TRANSIENTS.—This course is a study of transients in electric circuits, lines and machines, and includes applications to both the power and communication fields.

3 class hours. Credit, 3.
Associate Professor WILSON, Mr. SACHSE.
Prerequisites, Electrical Engineering 51, 54, 77.

79 (I) ELECTRIC COMMUNICATIONS I.—This course is a study of circuit elements used in electrical communication systems including networks and filters.

3 class hours. Credit, 3.
Prerequisite, Electrical Engineering 74.
Professor BROWN.

80. (II) ELECTRIC COMMUNICATIONS II.—This course is a continuation of Course 79 and is a study of circuits and components used in telephony, radio and other communication systems.

3 class hours; 1 3-hour laboratory period Credit, 4.
Professor BROWN, Mr. MOHN.
Prerequisite, Electrical Engineering 79.

83. (I) ALTERNATING-CURRENT MACHINE LABORATORY.—This is an advanced laboratory course on alternating-current machinery characteristics, controls and applications.
1 class hour; 1 3-hour laboratory period. Credit, 2.
Assistant Professor LANGFORD.
Prerequisite, Electrical Engineering 54.

84. (II) INDUSTRIAL CONTROLS.—This is a course in electrical, electronic and photoelectric controls and measurements in industrial applications, and includes systems of non-electrical nature.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Assistant Professor LANGFORD.
Prerequisites, Electrical Engineering 53, 54, 75.

85. (I) ELECTRICAL POWER APPLICATIONS.—This is a course in the industrial application of electric machinery and electronics including operating characteristics, controls and their design, coupling methods, protective devices and duty cycles.
3 class hours. Credit, 3.
Associate Professor WILSON.
Prerequisites, Electrical Engineering 53, 54, 74.

86. (II) POWER SYSTEM NETWORKS.—This course is a study of power networks including power transfer diagrams, voltage studies, system stability criteria, short-circuit calculations, and symmetrical components.
3 class hours; 1 3-hour laboratory period. Credit, 4.
Associate Professor WILSON, Mr. SACHSE.
Prerequisites, Electrical Engineering 54, 77.

88. (II) ELECTRICAL NETWORKS.—This course is a study of the steady-state and transient behavior of electrical networks and filters, and includes network design and applications.
3 class hours. Credit, 3.
Associate Professor WILSON.
Prerequisite, Electrical Engineering 77.

90. (II) ILLUMINATION.—This course is an introduction and survey of illumination engineering. It includes the study of light sources, units, measurements, vision, and lighting calculations and design.
3 class hours; 1 3-hour laboratory period. Credit, 3.
Mr. SACHSE.
Prerequisite, Physics 26.

92. (II) PROFESSIONAL SEMINAR.—For seniors majoring in electrical engineering. Current engineering problems are discussed by student reports. The professional aspect of the electrical engineer's work is stressed.
1 2-hour period. Credit, 1.
The DEPARTMENT.

94. (II) ULTRA-HIGH-FREQUENCY TECHNIQUES.—This course is a study of u.h.f. oscillators, amplifiers, transmitters, receivers, multi-vi-

brators, trigger and gate circuits, electronic switches, and controls, u.h.f. antennas, array and transmission systems.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Professor Brown.
Prerequisite, Electrical Engineering 75.

96. (II). Electromagnetic Fields.—This course is a study of electromagnetic fields, Maxwell's equations, Poynting vector, energy propagation, excitation and measurements, wave guide relations, and problems relating to communications and power applications.
3 class hours. Credit, 3.
Professor Brown.
Prerequisite, Electrical Engineering 77.

MECHANICAL ENGINEERING

Professor Bates, Professor Swenson, Assistant Professor Newlon,
Mr. Coffey, Mr. Card.

1. (I) Engineering Drawing I.—The purpose of the course is to develop skill in the use of drafting equipment with a working knowledge of orthographic projections, lettering, auxiliary views, sectional views, tracings and pictorial representation of machine parts.
2 3-hour laboratory periods. Credit, 2.
Professor Swenson, Mr. Card.

2. (II) Engineering Drawing II.—This course is designed to develop further skill in the use of drafting equipment and give practice in the making of working drawings through the study of dimensioning, fastenings, conventional representations, detail and assembly drawings, and reading of working drawings. Graphs, and intersection and development problems will also be studied.
2 3-hour laboratory periods. Credit, 2.
Professor Swenson, Mr. Card.
Prerequisite, Mechanical Engineering 1.

3. (I) Descriptive Geometry.—The course encompasses a study of the graphical methods applicable to engineering problems. Its content consists of the principles of orthographic projections, problems relating to lines and planes, graphic computations, polyhedrons, curved surfaces, warped surfaces and practical applications.
1 class hour; 1 3-hour laboratory period. Credit, 2.
Professor Swenson, Mr. Card.
Prerequisite, Mechanical Engineering 2.

23. (I) Shop.—The course is designed primarily for engineers other than mechanical. Approximately half the semester is spent in woodworking, pattern making, forging and welding; in the other half the student gains experience in the machine shop, where he becomes familiar with the various machine and hand tools used in metal working.
2 4-hour laboratory periods. Credit, 3.
Assistant Professors Newlon, Pushee, and Beck.

27. (I) Shop.—In the first part of the course woodworking and pattern making experience is gained on machines and with hand tools

at the bench. The course next proceeds to the forging and heat treating of metals and then to the various methods of welding.
2 4-hour laboratory periods. Credit, 3.
Assistant Professors Pushee, Newlon, and Beck.

28.‡ (II) Machine Shop.—Proficiency in metal working is obtained by lathe, drill press, planer, milling, grinding, screw machine and allied work, including hand tools at the bench. Some of the time is devoted to classroom work in the theory of machine tool operation, fits and tolerances, and manufacturing organization and procedures.
2 4-hour laboratory periods. Credit, 3.
Assistant Professor Newlon.

59. (I) and (II) Materials of Construction.—The manufacture, processing, and utilization of the many diversified products entering into construction today.
2 class hours. Credit, 2.
Assistant Professor Keyser.

61. (I) Testing of Materials.—A study of how the composition, structure, and treatment of materials influence their properties. Tests and observations are made to substantiate the theory. Metals are emphasized, but tests are also performed on such materials as wood, concrete, plastics, sands, and oils. Field trips will be made to nearby establishments in so far as possible.
1 class hour; 1 3-hour laboratory period. Credit, 2.
Professor Bates, Mr. Coffey.

63. (I) Engineering Thermodynamics I.—This course is a treatment of the application of the laws of heat to various energy-transforming devices. Topics include ideal and actual cycles of steam and internal combustion engines, turbines and air compressor together with problems pertaining to these machines, energy transformations in fluid flow, variable specific heats and mixtures of gases.
4 class hours. Credit, 4.
Professor Swenson.
Prerequisites, Physics 26; Mathematics 30 or 32.

64. (II) Engineering Thermodynamics II.—A continuation of the work of Course 63. Study will be made of liquids and vapors, thermodynamic cycles, energy transformations and the transfer of heat, together with engineering problems pertaining to these devices.
4 class hours. Credit, 4.
Professor Swenson.
Prerequisite, Mechanical Engineering 63.

65. (I) Heat Engineering I.—This course is a survey of the field of applied energy and is designed for engineering students outside of the mechanical engineering field. The application of the laws of heat to energy transforming devices is studied, but not as extensively as in Courses 63 and 64. A study will be made of gases, vapors, fuels, combustion,

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‡29. Advance work in machine tool laboratory (offered at Devens). Credit, 3.

heat transfer, atomic energy release, measurement of power, air compressors, fans, refrigeration and air conditioning.
3 class hours. Credit, 3.
Professor SWENSON, Mr. CARD.
Prerequisites, Physics 26; Mathematics 6.

66. (II) HEAT ENGINEERING II.—A continuation of the work of Course 65. Internal combustion engines and turbines, jet propulsion and power plants will be studied.
3 class hours. Credit, 3.
Professor SWENSON, Mr. CARD.
Prerequisite, Mechanical Engineering 65.

68. (II) KINEMATICS.—Principles of mechanism, including velocity and acceleration diagrams, instant centers, gear teeth and gear trains, cams, and various speed transmissions.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Professor BATES.
Prerequisites, Mechanical Engineering 1; Physics 25; Mathematics 6.

72. (II) FUNDAMENTALS OF METALLURGY.—The course is a study of the structure and properties, manufacture and fabrication of metals and metal products, including metallurgical laboratory work with emphasis on metallography and X-ray techniques.
1 class hour; 1 3-hour laboratory period. Credit, 2.
Assistant Professor KEYSER.

75. (I) POWER PLANTS.—This course is primarily a study of the steam power plant, including boilers, stokers, fuels, combustion, steam generation, steam engines and turbines, and auxiliary equipment. Other types of power generation will be studied to some extent.
3 class hours; 1 2-hour laboratory period. Credit, 3.
Professor SWENSON.
Prerequisite, Mechanical Engineering 64.

76. (II) REFRIGERATION AND AIR CONDITIONING.—The course content includes a study of the fundamental principles of thermodynamics as applied to refrigeration and air control. Application of refrigeration to industrial processes and the control of temperature, humidity and motion of air in buildings will be studies.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Professors BATES and SWENSON.
Prerequisite, Mechanical Engineering 64.

77. (I) INTERNAL COMBUSTION ENGINES.—A study is made of spark-ignition and compression-ignition engines including design, fuels, carburetion, ignition, combustion, lubrication, cooling, and engine performance. The gas turbine and jet propulsion will be included.
3 class hours. Credit, 3.
Professor SWENSON.
Prerequisite, Mechanical Engineering 64.

79. (I) MECHANICAL ENGINEERING LABORATORY I.—Laboratory exercises are performed which involve the study and calibration of in-

struments and tests of fuels and lubricants, performance tests of steam engines and turbines, gasoline and Diesel engines, fans, hydraulic apparatus, refrigeration systems and other typical engineering equipment. Emphasis on laboratory procedure and orderly presentation of results.
2 3-hour laboratory periods. Credit, 2.
Professors BATES and SWENSON, Mr. COFFEY.
Prerequisites, Civil Engineering 76 or 75 concurrently; Mechanical Engineering 64 or 66.

80. (II) MECHANICAL ENGINEERING LABORATORY II.—This course continues the work of the first semester in more advanced phases.
2 3-hour laboratory periods. Credit, 2.
Professors BATES and SWENSON, Mr. COFFEY.
Prerequisite, Mechanical Engineering 79.

83. (I) MACHINE DESIGN.—Principles involved in the design of various machine parts including fastenings, shafts, belts, bearings, gears, and pressure vessels.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Professor BATES.
Prerequisites, Civil Engineering 52 and either 51 or 53.

84. (II) DYNAMICS OF MACHINES.—Study and design of rotating machinery; dynamic forces and their balancing; critical speeds and combined stresses.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Professor BATES.
Prerequisites, Mechanical Engineering 68, 83.

86. (II) INDUSTRIAL ENGINEERING.—A broad course dealing with the many problems encountered in a modern industry. Topics include types of organization, management, plant location, arrangement of equipment, product design, methods of production control, costs, wage payment systems and personnel relations.
3 class hours. Credit, 3.

87. (I) INDUSTRIAL MANAGEMENT.—Management of industrial plants, cost systems, methods of fixing prices, methods of paying labor, welfare methods of handling labor, equipment and material.
3 class hours. Credit, 3.

88. (II) TIME AND MOTION STUDY.—Study of a number of jobs performed in industry with the objective of simplifying work, cutting costs, and computing standard times.
2 class hours; 1 3-hour laboratory period. Credit, 3.

Prerequisite, Mechanical Engineering 28.

92. (II) PROFESSIONAL SEMINAR.—For senior and graduate students only. Presentation of papers on various important subjects in the field

of mechanical and industrial engineering, with principal emphasis on recent developments.

Credit, 1.
The DEPARTMENT.

ENGLISH

Professor RAND, Professor PRINCE, Professor MUSGRAVE, Professor GOLDBERG, Associate Professor HELMING, Associate Professor TROY, Assistant Professor HORRIGAN, Assistant Professor DU BOIS, Assistant Professor VARLEY, Assistant Professor O'DONNELL, Mr. LANE, Mrs. WRIGHT, Mr. MARCUS, Miss TARANTINO.

1. (I) 2. (II) ENGLISH COMPOSITION.—Intended to teach straight thinking, sound structure, clear and correct expression.
3 class hours. Credit, 3.
The DEPARTMENT.

25. (I) 26. (II).—A SURVEY OF ENGLISH LITERATURE.—A general reading course, from the beginning of English literature to the end of the Nineteenth Century. Scheduled hours include Speech 29. (I) 30. (II).
2 class hours. Credit, 2.
The DEPARTMENT.

50. (II) CHAUCER (1949-50).—Reading of the principal works of Chaucer; a study of Chaucer's development as a creative artist; an attempt to appreciate his humanism. Given in alternate years.
3 class hours. Credit, 3.
12:00-12:50 M. W. F. Professor PRINCE.

51. (I) THE RENAISSANCE IN ENGLAND.—A study of various aspects of the Renaissance as revealed in such writers as Spenser, Bacon, Sir Thomas Browne, Burton, and Hobbes. Special emphasis is given to Spenser's *Faerie Queene.*
3 class hours. Credit, 3.
Associate Professor TROY.

52. (II) LYRIC POETRY OF THE SEVENTEENTH CENTURY (1947-48). —A study of the lyric poetry of Jonson, Herrick, Lovelace, Suckling, Donne, Herbert, Vaughan and others. Special emphasis will be given to the development and influence of the Cavalier and Metaphysical schools. Given in alternate years.
3 class hours. Credit, 3.
Assistant Professor HORRIGAN.

54. (II) MILTON (1948-49). The development of the mind and art of Milton as Renaissance writer. Emphasis is placed upon *Paradise Lost, Paradise Regained,* and *Samson Agonistes.* Given in alternate years.
3 class hours. Credit, 3.
Professor GOLDBERG.

55. (I) SHAKESPEARE.—This course is based upon the reading of about thirty of Shakespeare's plays, and attempts both to indicate the evolution of the dramatist and to emphasize the various phases of his art.
3 class hours. Credit, 3.
Professor RAND.

56. (II) AMERICAN PROSE.—A course in American thought as revealed in Emerson, Thoreau, Hawthorne, Melville, Henry Adams, and Santayana.
3 class hours. Credit, 3.
Professor PRINCE, Assistant Professor O'DONNELL.

57. (I) ELIZABETHAN DRAMATISTS.—A study of Elizabethan Drama, exclusive of Shakespeare, with special consideration of the plays of such men as Lyly, Peele, Green, Kyd, Marlowe.
3 class hours. Credit, 3.
Professor PRINCE.

58. (II) ELIZABETHAN DRAMATISTS (1948-49). —A continuation of English 57, with special consideration of the plays of Jonson, Beaumont, Fletcher, Webster, Ford, Massinger, Chapman, Middleton and Shirley. Given in alternate years.
3 class hours. Credit, 3.
Professor PRINCE.

Prerequisite, English 57.

59. (I) ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY (1949-50).—A brief exposition of the thought and the literature of the period, as found especially in the work of DeFoe Swift, Shaftesbury, Mandeville and Pope. Given in alternate years.
3 class hours. Credit, 3.
Professor PRINCE.

60. (II) ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY (1949-50). A continuation of English 59, but may be elected independently. A study of the literature of the later Eighteenth Century with special emphasis on the Johnson Circle. Given in alternative years.
3 class hours. Credit, 3.
Professor TROY.

61. (I) ROMANTIC POETRY (1948-49).—A study chiefly in the beginning of Romanticism in English poetry as found in the work of Collins, Gray, Burns, and Blake, with considerable attention to the culmination of Romanticism in the poetry of Shelley and Keats. Given in alternate years.
3 class hours. Credit, 3.
Professor PRINCE.

62. (II) ROMANTIC POETRY (1948-49).—A contrasting study of Byron and the Lake Poets, and in some ways a continuation of English 61. Given in alternate years.
3 class hours. Credit, 3.
Professor RAND.

63. (I) AMERICAN POETRY (1949-50). A study of American poetry from Colonial times to 1900, with especial emphasis upon the work of Freneau, Bryant, Emerson, Longfellow, Whittier, Poe, Whitman, and Emily Dickinson. Given in alternate years.
3 class hours. Credit, 3.
Assistant Professor DUBOIS.

64. (II) VICTORIAN POETRY (1949-50).—A study of Tennyson and Browning. Given in alternate years.

3 class hours. Credit, 3.

Professor RAND.

65. (I) ENGLISH PROSE OF THE NINETEENTH CENTURY.—A study of the chief Romantic prose writers in relation to literary techniques and main currents of epochal thought and feeling. Among the authors treated are Coleridge, Lamb, Hazlitt, DeQuincey, Carlyle, and Ruskin.

3 class hours. Credit, 3.

Professor GOLDBERG.

66. (II) ENGLISH PROSE OF THE NINETEENTH CENTURY.—A continuation of English 65, but may be elected independently. A study of the chief Victorian prose writers in relation to literary techniques and main currents of epochal thought and feeling. Among the authors treated are Macaulay, Newman, Arnold, Huxley, Pater, and Stevenson.

3 class hours. Credit, 3.

Professor GOLDBERG.

68. (II) MODERN DRAMA (1948-49).—This course traces the development of English drama from the time of Ibsen to the present day. Its purpose is to impart an intelligent and sympathetic interest in the theatre of the twentieth century. Given in alternate years.

3 class hours. Credit, 3.

Professor RAND.

70. (II) ENGLISH PROSE FICTION.—A course designed to illustrate the development of English prose fiction, with emphasis upon the great novels of the eighteenth and nineteenth centuries.

3 class hours. Credit, 3.

Associate Professor HELMING.

71. (I) BIOGRAPHY (1949-50).—The history of the biography as a literary type; discussion of leading biographers from Boswell to Maurois, with special emphasis upon the development of modern biographical method. Given in alternate years.

3 class hours. Credit, 3.

Associate Professor HELMING.

73. (I) THE BIBLE AS LITERATURE.—A study of the King James version of the Bible, with emphasis upon the Hebrew as discernible in translation, the poetic qualities characteristic of Tudor England, and the varied influence of the Bible upon subsequent English poetry.

3 class hours. Credit, 3.

Professor RAND, Professor GOLDBERG.

75. (I) GREEK CLASSICS IN TRANSLATION (1948-49).—Readings and discussion of the epics of Homer, representative dramas of Aeschylus, Sophocles, Euripides, and Aristophanes, the "Socratic" dialogues of Plato, and Thucydides on the Peloponnesian War. Intended to acquaint students

with the famous myths and stories of classical antiquity, and the literary forms and ideas which have contributed most to subsequent literatures. Given in alternate years.

3 class hours. Credit, 3.

Associate Professor Helming.

76. (II) Modern Poetry 1949-50.—This course attempts to trace the spirit of twentieth century poetry from such authors as Hardy, Whitman, and Emily Dickinson to those of the present day. Given in alternate years.

3 class hours. Credit, 3.

Professor Rand.

77. (I) The Modern Novel (1948-49).—An analytical presentation of eleven novels written between 1890 and 1930, in which the expanding form and the extension of critical themes will be stressed. Given in alternate years.

3 class hours. Credit, 3.

Assistant Professor Varley.

78. (II) An Introduction to Literary Criticism (1949-50).—A study of major critical attitudes and principles, in relationship to philosophic background and to practice. Emphasis is placed upon important writers from Aristotle (the *Poetics*) to the chief modern critics and theorists of literature. Given in alternate years.

3 class hours. Credit, 3.

Associate Professor Goldberg.

81. (I) Creative Writing.—A course in critical and imaginative composition, based upon the example of standard authors and the experience of the student. This course provides an opportuntiy for work in description, narrative, verse, and drama, as well as in exposition.

3 class hours. Credit, 3.

Associate Professor Troy, Assistant Professors Varley, O'Donnell, Harrigan.

Prerequisites, English 1, 2.

83. (I) Technical Writing.—For majors in engineering. A course in factual and inductive exposition with special emphasis upon process reports and thesis preparation.

2 class hours. Credit, 2.

Prerequisites, English 1, 2.

84. (II) Expository Writing.—For students not majoring in engineering. A course in factual and inductive exposition with special emphasis on library research and the preparation of reports, essays and theses.

3 class hours. Credit, 3.

Prerequisites, English 1, 2.

85. (I) Principles of Journalism.—A survey course designed to acquaint the student with the scope, principles, and practice of contem-

porary journalism. Stress is placed upon the role of the press as a social institution and upon the relationships between a general education and effective journalism. Principles are applied through analysis of journalistic work and through writing practice.

3 class hours. Credit, 3.

Professor MUSGRAVE.

86. (II) JOURNALISTIC TECHNIQUES.—Instruction and laboratory practice in writing various types of news stories, feature and magazine articles. The practice work is related to problems of interpretative writing, communication, and public opinion.

3 class hours. Credit, 3.

Professor MUSGRAVE.

Prerequisite, English 85 or permission of the instructor.

ENTOMOLOGY

Professor ALEXANDER, Professor SWEETMAN, Assistant Professor HANSON, Assistant Professor SHAW, Dr. SMITH

26. (II) GENERAL AND FIELD ENTOMOLOGY.—The lectures are devoted to a brief survey of the entire field of entomology; structure and metamorphosis; the more important methods and materials for control of injurious species; a survey of the more conspicuous and important insects with particular attention to the fauna of New England. A laboratory period will be devoted to the preparation and formation of a collection of insects. Until about April 10th, this work will be done indoors and will consist of lectures and practical work preparatory to the field work after that date. Collections made by the students are studied in later courses.

2 class hours; 1 2-hour laboratory period. Credit, 3.

8:00-8:50 M. F.; 1:00-2:50 M. Tu. W. Th.

Professor ALEXANDER, Dr. SMITH.

51. (I) PESTS OF SPECIAL CROPS.—For students not specializing in entomology who desire a more complete knowledge of the insects connected with their major lines of work. Work in the laboratory consists of identification, life-history studies and control measures of important insect pests. Work of this nature is available on pests of field crops, market-garden crops, fruits, flowers, shade trees and shrubs, forest trees, household articles, domestic animals, and man.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

10:00-10:50 M.; 1:00-2:50 Tu.; 2:00-3:50 Th.

Assistant Professor SHAW.

Prerequisite, Entomology 26.

53. (I) APPLIED ENTOMOLOGY.—Studies on the more important insect pests, their life-histories, damage, identification, and methods of control. Special attention is devoted to the use of entomological literature,

methods of preparing scientific papers, and the general principles of insect control.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 W.; 3:00-4:50 M. F. Assistant Professor SHAW.
Prerequisite, Entomology 26.

55. (I) 56. (II) CLASSIFICATION OF INSECTS.—Laboratory work on the identification of the major orders of insects. In Course 56, the immature stages of insects, with particular stress on their structure and recognition.
3 2-hour laboratory periods. Credit, 3.
8:00-9:50 Tu. Th. S. Professor ALEXANDER, Dr. SMITH.
Prerequisites, Entomology 26; Entomology 57, previously or concurrently.

57. (I) INSECT MORPHOLOGY.—The lectures treat of the internal and external anatomy of insects, particular stress being placed on those structures needed in classification, for use in the parallel Course 55. In the laboratory, the internal and external anatomy of the more important groups is studied, with emphasis on those characters most used in the determination of insects.
1 class hour; 3 2-hour laboratory periods. Credit, 4.
10:00-10:50 F.; 1:00-2:50 M. Tu. F. Assistant Professor HANSON.
Prerequisite, Entomology 26.

60. (II) STRUCTURAL PEST CONTROL.—For students specializing in entomology, especially those desiring to enter the structural pest field, and others interested in gaining knowledge of methods of combating insect and rodent pests. The emphasis will be placed on the control of those pests attacking buildings and other structures, foods, fabrics, and other stored products in private homes or other establishments. The life history, feeding habits, methods of reproduction, and dispersal of the various species will be stressed in so far as these influence control measures.
2 class hours. Credit, 2.
Hours by arrangement Professor SWEETMAN.

72. (II) FOREST AND SHADE-TREE INSECTS.—The lecture work deals with the principles and methods of controlling insects which attack shade trees, forests and forest products. The laboratory periods are devoted to a study of the more important species, their identification, biology, and specific control measures.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 W.; 1:00-2:50 M. F. Professor ALEXANDER.
Prerequisite, Entomology 26; 53, 55, 56, and 57 desirable.

74. (II) MEDICAL ENTOMOLOGY.—Diseases of man and animals that are transmitted by insects and other arthropods. Especial attention is given to such transmission under war conditions, and to camp sanitation and similar topics.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Entomology 26.
Assistant Professor SHAW.

79. (I) ANIMAL ECOLOGY.—Designed for students specializing in entomology, zoology, and related fields. The course deals with the relation of animals to their environment, covering the physical factors as temperature, moisture, light, etc., and the biotic factors as neighbors, competitors, predators, etc. Both terrestrial and aquatic communities are studied. The student is shown not only that animals do things, but why they make definite responses to the environmental factors. Actual measurements of the environmental factors and responses of the animals in the field and laboratory are included.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 M. F.; 3:00-4:50 M. Professor SWEETMAN.
Prerequisite, Entomology 26 or Zoology 1 or equivalent.

80. (II) INSECT CONTROL.—The scientific basis of insect control is considered from the chemical, biological, ecological, mechanical, and legislative approaches. Special emphasis is placed on the composition, manufacture, preparation, and reaction of insecticides, and the use of resistant hosts, micro-organisms and the larger parasites and predators that might be used in the control of insects.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9.00-9:50 M.; 3:00-4:50 M. F. Professor SWEETMAN.
Prerequisites, Entomology 53, 55, and 57; 79 and 81 desirable.

81. (I) PHYSIOLOGICAL ENTOMOLOGY.—A detailed consideration is given to the organ systems, showing the functions such as nutrition, respiration, and growth, and the relationship of physiology to behavior. A portion of the laboratory time will be devoted to assigned individual problems dealing with any phase of insect biology or control and conducted on a research basis.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 W.; 3:00-4:50 W. F. Professor SWEETMAN.
Prerequisite, Entomology 26; 55, 56, and 57 desirable.

87. (I) 88. (II) SPECIAL PROBLEMS IN ENTOMOLOGY.—Problem work in many fields, as apiculture, biological control and insectary practice, insecticides, morphology, and classification. Intended primarily to introduce qualified students to research methods in some branch of entomology. Excess departmental credits are necessary for election.

Hours by arrangement. Credit, 1, 2, or 3.
The DEPARTMENT.
Prerequisites, Entomology 26, 53, 55, 57, and should be preceded or accompanied by any other courses in the restricted field of the problem.

90. (II) EVOLUTION.—In order to demonstrate the universal scope and operation of the laws of evolution, the course includes a brief sketch of the probable origin and evolution of matter as viewed in the light of modern physical and chemical research; the evolution of the solar system, leading to the formation of the earth; the changes in the earth, preparatory to the production of life; the physical and chemical basis of

life; the probable steps in the formation of living matter, and the theories concerning it; the evolution of living things; the developmental history of man, and of the races of mankind; the evolution of human intelligence, languages, culture, institutions, etc., and man's probable future in the light of his past development. Especial consideration is given to the factors of evolution, the basic principles of heredity, variation, and similar topics, with particular reference to their application to human welfare.

2 class hours. Credit, 2.
10:00-10:50 M. F. Assistant Professor HANSON.

Apiculture

66. (II) INTRODUCTORY BEEKEEPING.—The laboratory work consists of a study of beekeeping equipment and the methods of assembling this material; a study of pollen and honey plants; spring management. The lectures are intended to give the student a broad grasp of the entire field of beekeeping, considering such subjects as history; statistics of beekeeping in America; the races of bees; methods of management; bee-diseases; pollination; queen-rearing.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 M. F.; 1:00-2:50 M. Assistant Professor SHAW.

85. (I) ADVANCED BEEKEEPING.—The laboratory work consists of fall management, care of the honey crop, preparation of colonies for wintering, bee-diseases, and some simple types of biometrical problems. The lectures consider, among other things, the physical and chemical characteristics of honey and wax; chemical tests to detect adulteration of honey; bee-diseases; and biometry.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor SHAW.

Prerequisite, Entomology 66.

FINE ARTS

Assistant Professor ROBERTSON, Assistant Professor ALVIANI,
Mr. McCARTNEY

Art

27. MODELING.—A course in elementary modeling, of seeing, analyzing, and reproducing form in clay and modeling wax to develop sculptural technique.

6 laboratory hours. Credit, 3.
Assistant Professor ROBERTSON.

28. MODELING.—A continuation of Course 27 in advanced design and the making of plaster casts from original problems in small sculpture, such as plaques, masks, and medals or other such pieces.

6 laboratory hours. Credit, 3.
Assistant Professor ROBERTSON.

Prerequisite, Art 27.

31. (I) ELEMENTARY DESIGN.—For women. Elementary principles of design as applied to textiles, fabrics, interior decorations, etc.
3 2-hour laboratory periods. Credit, 3.
Mr. MACIVER.

33. (I) FREEHAND DRAWING.—A non-professional course in elementary drawing and painting in various media in black and white. The work is more or less personal and is adapted to the individual capacities and backgrounds of each student as far as possible.
6 laboratory hours. Credit, 3.
Mr. MACIVER.

34. (II) FREEHAND DRAWING.—This non-professional course is essentially one in which the use of color is stressed in various media, freehand drawing is emphasized, and paintings in still-life and landscape subjects are produced.
6 laboratory hours. Credit, 3.
Mr. MACIVER.

75. (I) ART APPRECIATION.—An analysis of the principles of critical judgment underlying the fine arts, leading toward the enjoyment of art and its application to every day life.
3 class hours. Credit, 3.
Professor OTTO.

77. (I) EARLY AND MEDIEVAL ART.—An appreciative survey of art and history from early times through the medieval period. Works in painting, sculpture, architecture, and the minor arts are examined in the light of their contributions to the history of civilization, and to the development of art forms.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor ROBERTSON.

78. (II) RENAISSANCE AND MODERN ART.—This course is a continuation of Art 77, bringing the historical survey of art down to modern times. While it is advisable to take both courses, either may be elected independently.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor ROBERTSON.

Music

As an addition to the courses listed below, the department can make arrangements with thoroughly well-qualified teachers to offer private instruction, without course credit, in voice, piano, organ, violin, and viola.

25. (I) INTERPRETATION OF MUSICAL SYMBOLS.—The course is designed to introduce simple fundamentals of music, including three distinct but correlated fields: sight singing, ear training, and keyboard harmony. Previous musical experience is not required.
Hours by arrangement. Credit, 1.
Assistant Professor ALVIANI.

26. (II) CONDUCTED CHORAL AND INSTRUMENTAL MUSIC.—The aim of this course is to teach the methods of directing choral and instrumental groups. It is arranged so as to acquaint the student with the techniques of conducting, the meanings of musical notation, and with the problems of actual performance. Previous musical experience is desirable, but not required.

Credit, 1.
Hours by arrangement. Assistant Professor ALVIANI.

51. (I) DISCOVERING MUSIC.—This elementary course is non-technical in nature and is designed primarily for those students who would like to acquire a general background and knowledge of this great art. With learning to listen its motive, the course deals with the elements of music, forms in music, musical compositions, and with selected composers. Excerpts from the works of great masters will be used as illustrations.
3 class hours. Credit, 3.
1:00-1:50 or 2:00-2:50 Tu. W. Th. Assistant Professor ALVIANI.

52. (II) GREAT PERIODS OF MUSIC.—This course attempts to transport the student into the spirit of each of several great periods of music—Renaissance, Baroque, Classic, Romantic, and Modern—so that he will feel their quality, understand their enthusiasms, their technical resources and limitations, and their habits of thought and style.
3 class hours. Credit, 3.
1:00-1:50 or 2:00-2:50 Tu. W. Th. Assistant Professor ALVIANI.

61. (I) MUSIC OF THE TWENTIETH CENTURY.—By a study of musical trends, during the twentieth century, this course shows the aims, accomplishments, and future plans of the recent and present day composers. Compositions of this century are heard and studied as illustrations of the trends which have caused the twentieth century to be called one of unrest and experiment for music.
2 class hours. Credit, 2.
9:00-9:50 M. W. Assistant Professor ALVIANI.
Prerequisite, Music 51 or 52 or permission of instructor.

62. (II) GREAT MASTERPIECES OF MUSIC.—The course includes the history and analysis of selected compositions most frequently heard in the concert hall, on records, and on the radio. The selected works will be masterpieces composed during the last two hundred years by the best known composers.
2 class hours. Credit, 2.
9:00-9:50 M. W. Assistant Professor ALVIANI.
Prerequisite, Music 51 or 52 or permission of instructor.

75. (I) HARMONY.—A study of harmonic principle, part writing for voices and small instrumental groups, and ear training. Previous musical experience is desirable, but not required.
3 class hours. Credit, 3.
Hours by arrangement. Assistant Professor ALVIANI.

76. (II) Elementary Composition and Arranging.—A study of small musical forms, so that they shall serve as models for original compositions. The instruments of the orchestra will be studied and practical work in orchestral scoring assigned as projects.

3 class hours. Credit, 3.
Hours by arrangement. Assistant Professor Alviani.
Prerequisite, Music 75.

FLORICULTURE

Professor Thayer, Assistant Professor Hubbard, Assistant Professor Ross.

26. (II) Garden Materials.—A study of the annuals, biennials, herbaceous perennials, bulbs, bedding plants, and roses that are valuable for use in floricultural or landscape gardening work. Methods of propagation, culture, and uses of the various plants are considered as well as identification of materials.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 M. F.; 3:00-4:50 M.

51. (I) Greenhouse Management.—This course is intended to familiarize students with the methods and principles involved in the management of greenhouses and greenhouse crops; history and development of the floricultural industry, preparation of soils, fertilizers, potting, watering, ventilation, control of insects and diseases, methods of plant propagation, forcing of plants, soilless methods of plant culture. At some time during the semester the members of the class will be required to take a one-day trip to visit large commercial establishments at an approximate cost of five dollars.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor Thayer, Assistant Professor Ross.
9:00-9:50 M. F.; 3:00-4:50 F.

52. (II) Floral Arrangement.—A study of the principles involving the arrangement and use of cut flowers and plants; funeral designs, basket and vase arrangements, corsages, wedding bouquets, table decorations, home, church, and other interior decorations. A study of color and color harmony as applied to such work. This course is limited to ten students, preference being given to students specializing in floriculture and landscape architecture.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor Thayer, Assistant Professor Ross.
8:00-8:50 Th.; 1:00-2:50 M. F.

54. (II) Greenhouse Construction and Heating.—The location, types, arrangement, construction, cost, equipment, heating, and ventilation of greenhouse structures; the drawing of plans and study of specifications. Special emphasis laid on heating problems.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 M. F.; 3:00-4:50 F. Professor Thayer.

58. (II) AMATEUR FLORICULTURE.—This course is intended primarily for major students in the School of Home Economics and for other women students. Three phases of floriculture will be considered: (1) the arrangement and use of cut flowers for decorative purposes in the home and elsewhere, (2) house plants, methods of propagation, (3) garden flowers and their uses on the home grounds.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu., 1:00-1:50 Th.; 1:00-2:50 W. or 2:00-3:50 Th.
Professor THAYER, Assistant Professor ROSS.

75. (I) 76. (II) COMMERCIAL FLORICULTURE.—A detailed study of the cultural methods for the important commercial cut-flower crops and potted plants. The marketing of flowers and plants, including the management of wholesale markets and retail stores, a study of systems of record keeping, cost analysis, inventory methods, and other phases of this important part of the floricultural industry. Trips may be taken to nearby commercial establishments.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 Tu. Assistant Professor HUBBARD.
Prerequisite, Floriculture 51.

79. (I) CONSERVATORY PLANTS (1948-49).—Alternates with Course 81 for students specializing in floriculture. A study of the foliage and flowering plants used in conservatory work; methods of propagation; identification of materials.

1 class hour; 1 2-hour laboratory period. Credit, 2.
3:00-3:50 W.; 1:00-2:50 F. Professor THAYER, ———.

81. (I) HERBACEOUS GARDENS AND BORDERS.—Alternates with Course 79 for students specializing in floriculture; given annually for students specializing in landscape architecture. This course is a continuation of Course 26 with emphasis on the use of herbaceous materials in various types of plantings and the planning of borders and gardens.

1 class hour; 1 4-hour laboratory period. Credit, 3.
10:00-10:50 Tu.; 1:00-4:50 M. Assistant Professor HUBBARD.
Prerequisite, Floriculture 26.

82. (II) SEMINAR.—For seniors specializing in floriculture. Presentation and discussion of research work in floriculture and other related fields.

1 class hour; 4 laboratory hours. Credit, 3.
Professor THAYER.

FOOD TECHNOLOGY

Professor FELLERS, Assistant Professor LEVINE, Assistant Professor KRANZ, Dr. FITZPATRICK,* Mr. MORSE.

51. (I) INTRODUCTORY COURSE.—This is a general elementary course covering food economics, production, distribution and processing. The applications of fundamental science to the food industries are pointed

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* On leave of absence for military service.

out. The laboratory exercises cover both the theory and practice of canning, freezing and dehydration. The principles of packaging are considered. Fruit and vegetable products are prepared and graded.

1 class hour; 1 4-hour laboratory period. Credit, 3.
8:00-8:50 Tu.; 1:00-4:50 W. or Th. Professor FELLERS.

52. (II) FOOD PRODUCTS AND ADJUNCTS.—This is a continuation of Course 51. The laboratory work includes pickles and pickle products, maple products, citrus products, fruit syrups, soups, condiments, and the preservation of meats, poultry, and vegetables. The properties and uses of sugars, syrups, brines, enzymes, acids, salt, pectin, preservatives and antioxidants are considered. Experience is given in the use and handling of instruments and equipment. Enrollment is limited to 25.

2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu. Th.; 1:00-2:50 W. or Th. Professor FELLERS.
Prerequisite, Food Technology 51.

61. (I) INDUSTRIAL TECHNOLOGY.—A survey of commercial practices in the manufacture and preservation of food products. This will involve a study of equipment, factory arrangement, sanitation, government regulations, and the operation of types of commercial equipment in quantity production.

1 class hour; 1-4-hour laboratory periods. Credit, 3.
11:00-11:50 Th.; 1:00-4:50 M. or Tu. Assistant Professor LEVINE.
Prerequisites, Food Technology 52; Bacteriology 31.

62. (II) INDUSTRIAL TECHNOLOGY.—This is a continuation of Course 61. The class exercises will deal largely with a survey study of the sources of raw material, commercial methods of manufacture, packing and distribution of the more common foods. The important contributions of research to food technology will be studied. Laboratory work will include the formation of research projects, interpretation of research data, the use of preservatives, the simple analysis of foods and the commercial practices as applied to preservation of such materials as are available: fish, meats, poultry, and spring vegetables. The inspection and grading of canned food will be studied. Sometime during the semester a two-day field trip to food plants in the Boston area will be taken. The trip will cost the student about fifteen dollars.

1 class hour; 1 4-hour laboratory period. Credit, 3.
Hours by arrangement. Assistant Professor LEVINE.
Prerequisite, Food Technology 61.

71. (I) 72. (II) FOOD SCIENCE LITERATURE.—For seniors who specialize in food technology.

2 class hours. Credit, 2.
11:00-11:50 M. W. The DEPARTMENT.

75. (I) and (II) FOOD PRESERVATION.—For students not majoring in food technology. A survey is made of the causes of food spoilage and of the methods commonly used in preserving foods. The important food products are discussed with emphasis on raw materials used, processing

methods and examination of packaged foods. Methods of detecting and preventing spoilage are studied. The laboratory exercises cover the preservation of the major food groups. The theory and use of the pressure cooker are included.

2 class hours; 1 2-hour laboratory period. Credit, 3.
12:00-12:50 Tu. Th.; 3:00-4:50 M. or Th.

82. (II) CONFECTIONS AND CEREAL PRODUCTS.—The materials offered in this course are as follows: the home manufacture of fruit preserves, candied and glaced fruits, fruit pastes, confections, candies, and other specialities. Approximately one-half the semester is devoted to elementary work in candy making. This course will also consider the principles of baking, doughs, various cereal products and dry mixes.

2 2-hour laboratory periods. Credit, 2.
1:00-2:50 M. F. or 3:00-4:50 M. F.
Assistant Professor LEVINE.

91. (I) EXAMINATION OF FOOD PRODUCTS.—Laboratory studies on the grading of foods, examination of foods for adulteration, testing accessory products for quality, and determining the causes of spoilage or deterioration in processed food products. Physical, chemical, microbiological, and microscopical methods will be employed. Enrollment limited to 18.

1 class hour; 1 4-hour laboratory period. Credit, 3.
9:00-9:50 Th; 1:00-4:50 Th. or F. Professor FELLERS.
Prerequisites, Food Technology 52; Bacteriology 31; Chemistry 30.

92. (II) EXAMINATION OF FOOD PRODUCTS.—For students specializing in food technology. This is a continuation of Course 91. It includes interpretation of analyses, sanitation and food laws, government grading of processed foods, use of manuals and the technical work of trade associations. Laboratory work includes use of all kinds of laboratory and field equipment and apparatus used in food plants.

1 class hour; 1 4-hour laboratory period. Credit, 3.
9:00-9:50 Th.; 1:00-4:50 Th. or F. Professor FELLERS.
Prerequisite, Food Technology 91.

95. (I) AND (II) INTRODUCTORY RESEARCH METHODS.—For food technology majors. The application of the fundamental sciences to food technology research.

Hours by arrangement. Credit, 2.
The DEPARTMENT.

FORESTRY AND WILDLIFE MANAGEMENT

Professor HOLDSWORTH, Professor TRIPPENSEE, Professor RHODES,
Associate Professor RICH, Assistant Professor STICKEL, Mr. HADLEY

26. (II) DENDROLOGY.—The taxonomic features, silvical characteristics, and geographical distribution of the trees of temperate North America, especially those of economic importance and the forests in which they occur; identification of the native and naturalized woody plants occur-

ring in the forests of the northeastern United States, in summer and winter condition, by means of artificial keys and first-hand examination.

2 class hours; 2 2-hour laboratory and field periods. Credits, 3.
Professor RHODES.

51. (I) FOREST MANAGEMENT OF WATERSHEDS.—For students majoring in bacteriology and public health. Admission on recommendation of student's major adviser. A study of forest site—water factor relationships; the improvement of watershed forests through applied silviculture; relative suitability of tree species for watershed uses; forest protection measures.

3 class hours; Special field trips. Credit, 3.
The DEPARTMENT.

53. (I) SILVICS.—Forest ecology as a foundation for silvicultural practice: the physiological basis of forest ecology; environmental factors from an ecological viewpoint, their effect upon vegetation, and how they are influenced by it; the development and silvical habits of the individual tree; the development, characteristics and classification of forest communities; plant indicators; methods for the study and analysis of vegetation and its environment.

2 class hours; 1 4-hour laboratory and field period. Credit, 3.
Professor RHODES.

54. (II) FOREST SOILS.—The structure, development and maintenance of forest soils; their relationship to applied silviculture and forest productivity; the literature of forest soils with special reference to American experience.

3 class hours. Credit, 3.
Professor RHODES.

55. (I) THE ELEMENTS OF FOREST MENSURATION.—Methods of determining the volume and value of the forest growing stock; type mapping as it pertains to timber cruising; methods of predicting growth of trees and stands; the field work includes mapping and timber estimating on a forest realistic in size and condition.

2 class hours; 1 4-hour laboratory and field period. Credit, 3.
Professor HOLDSWORTH, Mr. HADLEY.

56. (II) THE PRINCIPLES OF SILVICULTURE.—The methods of establishing and developing forest stands through the application of correct silvicultural practice. Intermediate cuttings and reproduction systems. Field work in applied silviculture, including the marking of forest stands for silvicultural treatment, is given on Mt. Toby demonstration forest.

2 class hours; 1 4-hour laboratory and field period. Credit, 3.
Professor HOLDSWORTH, Assistant Professor RHODES, Mr. STICKEL.

57. (I) FOREST ECONOMICS AND POLICY.—The first third of this course deals with the history of American forestry and the development of a forest policy. The rest deals with the forest as a National resource yield-

ing both measurable material forest values and social benefits. The role of the forest in American economy is considered.

3 class hours. Credit, 3.
Professor HOLDSWORTH.

59. (I) FOREST PROTECTION.—The principles of protecting forests from all harmful agencies but with special reference to the prevention and control of forest fires. Agencies harmful to the forest are treated in accordance with their importance.

3 class hours. Credit, 3.
Assistant Professor STICKEL.

66. (II) WOOD ANATOMY AND IDENTIFICATION.—A basic anatomical study of wood elements, their various structural characteristics and functions. Relation of structure and properties to use. Microscopic study of wood elements. Practice in identification.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Associate Professor RICH.

75. (I) MANUFACTURE AND DISTRIBUTION OF FOREST PRODUCTS.—A study of the techniques of manufacturing direct forest products, including production and cost studies; also the seasoning, grading and special processing prerequisite to marketing.

3 class hours. Credit, 3.
Associate Professor RICH.

76. (II) WOOD TECHNOLOGY.—The structure, composition and properties of wood in relation to its economic utilization; wood-liquid relationships as they affect seasoning, preservation, and technological processes for industrial purposes. A survey of the technological advances in the use of wood.

3 class hours. Credit, 3.
Associate Professor RICH.

78. (II). HARVESTING OF FOREST PRODUCTS.—Methods of harvesting forest products in the several forest regions of the United States with a study of the uses of modern machinery and techniques. Cost control as a factor in the development of harvesting methods and policies.

3 class hours. Credit, 3.
Associate Professor RICH.

80. (II) PRINCIPLES OF FOREST MANAGEMENT.—The organization of the forest for sustained yield management with a study of the underlying principles. Forest regulation. The preparation of forest management plans.

2 class hours; 1 4-hour field and laboratory period. Credit, 3.
Professor HOLDSWORTH.

81. (I) REGIONAL SILVICULTURE.—The practice of silviculture as applied in the several forest regions of the United States with special reference to the treatment of the tree species of commercial importance.

Emphasis is given to the factors, both natural and economic, which govern silviculture in these regions.

3 class hours. Credit, 3.
Professor Rhodes.

82. (II) Seeding and Planting in the Practice of Forestry.—A study of forest tree seeds and their characteristics, production, harvest, storage, and qualities of germination. The production, distribution, and forest use of planting stock.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor Stickel.

85. (I) Air Seasoning and Kiln Drying.—A study of the proper conditioning of wood products by air seasoning and kiln drying. Laboratory work includes studies of moisture relations in the wood and a study of kiln operation.

3 class hours. Credit, 3.
Associate Professor Rich.

Wildlife Management

27. (I) Conservation of Natural Resources.—Natural resources of the United States including soil, water, forests, wildlife, and the important minerals, the historic background of their use and their present status in relation to the social and economic welfare. Includes the discussion of various conservation problems in relation to national prosperity.

3 class hours. Credit, 3.
Professor Trippensee.

70. (II) Wildlife Management.—Life histories, ecology, and management of common game birds and mammals. Includes a study of natural habitats and methods of management.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
3:00-4:50 W. F.; lecture by arrangement. Professor Trippensee.

71. (I) Wildlife Management.—Life histories, ecology, and management of waterfowl and fur bearers. Includes a study of natural habitats and method of management.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor Trippensee.

72. (II) Forest-Animal Relationships.—For students not majoring in Wildlife Management. Effects of animals on the forest; the effects of forest practices on wild animal production; economic aspects of forest-animal relationships.

3 class hours. Credit, 3.
Professor Trippensee.

73. (I) Wildlife Management.—Life histories, ecology, and management of predaceous birds and injurious mammals. Particularly designed for those who seek employment with rodent control division of Fish and Wildlife Service.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor Trippensee.

74. (II) Techniques in Wildlife Management.—Admission by permission of instructor. Quantitative field studies of wild animals of forest and farm. Includes cover mapping, habitat studies, census, food habits, and damage of game animals. For students interested in state and federal employment through civil service.

1 class hour; 1 4-hour laboratory period. Credit, 3.
1:00-1:50 W.; 1:00-4:50 M. Professor Trippensee.

GEOLOGY AND MINERALOGY

Professor Wilson, Assistant Professor Nelson

27. (I) Physical Geology.—An introduction to the agents and processes that modify the earth's crust. Field trips by arrangement.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 M. F.; 1:00-2:50 M. Tu. W. Th. or F.
Professor Wilson, Assistant Professor Nelson.

28. (II) Historical Geology.—A survey of geological time, stressing the development of continents and the history of plants and animals. Field trips by arrangement.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 M. F.; 1:00-2:50 M. Tu. W. Th. or F.
Professor Wilson, Assistant Professor Nelson.

50. (I) Engineering Geology.—A general course in engineering geology stressing earth structure, the dynamic processes, and agents of weathering. The laboratory work consists of mineral and rock-determination and map-reading as related to the phenomena of physical geology.

2 class hours; 1 3-hour laboratory period. Credit, 3.
Professor Wilson.

51. (I) Mineralogy.—A descriptive study. Stress is placed upon the identification and occurrence of minerals.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Assistant Professor Nelson.

52. (II) Petrology.—A descriptive study of the classes of rocks with reference to manner of origin, modes of occurrence, structural features and the chemical and petrographic distinction within each group.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
1:00-1:50 W.; 1:00-2:50 M. F. Assistant Professor Nelson.

61. (I) PHYSIOGRAPHY AND REGIONAL GEOLOGY—EASTERN UNITED STATES (1948-49).—A systematic study of the topography and geological features of the eastern United States. Field trips by arrangement. Given in alternate years.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor WILSON.

62. (II) PHYSIOGRAPHY AND REGIONAL GEOLOGY.—Western United States (1948-49).—A systematic study of the topography and geological features of the western United States. Given in alternate years.

3 class hours. Credit, 3.
11:00-11:50 M.W.F. Professor WILSON.

63 (I) INVERTEBRATE PALEONTOLOGY (1949-50).—A study of the history, development and identification of invertebrate animal fossils. Field trips by arrangement. Given in alternate years.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 W.; 10:00-11:50 M.F. Professor WILSON.

64 (II) PLANT PALEONTOLOGY (1947-48).—A study of the history, development, and identification of plant fossils. Field trips by arrangement.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 W.; 10:00-11:50 M.F. Professor WILSON.

71 (I) 72. (II) SPECIAL PROBLEMS.—For seniors specializing in geology.

6 laboratory hours. Credit, 3.
Hours by arrangement.
Professor WILSON, Assistant Professor NELSON.

GERMAN

Professor JULIAN, Professor GRAHAM,* Associate Professor ELLERT,
Miss GRAYSON, Mr. TIBBETTS

1. (I) 2. (II) ELEMENTARY GERMAN.—Grammar, prose composition, and reading. No credits in this course may be applied toward a degree until the close of the second semester, except upon special recommendation from the Dean.

3 class hours. Credit, 3.
Professor JULIAN, Professor GRAHAM, Associate Professor ELLERT,
Miss GRAYSON, Mr. TIBBETTS

5. (I) 6. (II) ADVANCED GERMAN PROSE.—Reading of representative German authors. Grammar review.

3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Miss GRAYSON.
Prerequisite, Entrance German.

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* Visiting Professor.

25. (I) 26. (II) INTERMEDIATE GERMAN.—German prose and poetry; the simpler German drama; grammar review and advanced prose composition. Simpler passages of prose and poetry to commit to memory.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. or 10:00-10:50 M. W. F. or 9:00-9:50 Tu. Th. S.
Professor JULIAN, Associate Professor ELLERT, Miss GRAYSON, Mr. TIBBETTS
Prerequisites, German 1 and 2.

51. (I) 52. (II) NINETEENTH CENTURY LITERATURE.—A survey of German thought in the Nineteenth Century.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Associate Professor ELLERT.
Prerequisites, German 25 and 26.

55. (I) 56. (II) "STORM AND STRESS" AND ROMANTICISM.—The "Storm and Stress" period of German literature, with study of the early plays of Goethe and Schiller. The Romantic period from Novalis to Heine, with study of poets, prose writers, critics, and philosophers.
3 class hours. Credit, 3.
Associate Professor ELLERT.
Prerequisities, German 25 and 26.

57. (I) 58. (II) GOETHE'S FAUST.—
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor JULIAN.
Prerequisites, German 25 and 26.

59. (I) 60. (II) THE CLASSICAL PERIOD.—Reading and study of some important literary productions of the classical period.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Associate Professor ELLERT.
Prerequisites, German 25 and 26.

79. (I) 80. (II) CONVERSATIONAL GERMAN.—Admission only by arrangement with the instructor in charge. Practice in the oral use of German, based on reading material prepared in advance.
3 class hours. Credit, 3.
Hours by arrangement. Professor JULIAN.
Prerequisites, German 25 and 26.

81. (I) 82. (II) SCIENTIFIC GERMAN.—Only seniors admitted, except by permission of the instructor. Intensive and specialized reading of literature taken from standard German scientific journals and reference books.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor JULIAN.
Prerequisites, German 25 and 26.

HISTORY

Professor ~~Mackimmie,~~ Professor Caldwell, Professor Cary, Assistant Professor Pierce, Assistant Professor Ferwerda.

5. (I) 6. (II) Modern European Civilization.—The first semester covers the period from the early Middle Ages to 1815; the second semester, the period from 1815 to the present. These courses are required for candidates for the B.A. degree but may be elected independently by other students.

The Department.

25. (I) American Government.—A study of the structure and operation of our federal government. The course is based on a study of the Constitution with reference to its historical development and interpretation. Special consideration is given to changes of the twentieth century and to present-day problems.

3 class hours. Credit, 3.

Professor Caldwell, Assistant Professor Ferwerda, Mr. Farber.

31. (I) 32. (II) English History.—Emphasis on economic, social, and cultural influences, as well as on constitutional development. Either semester may be elected independently.

3 class hours. Credit, 3.

Professors Mackimmie and Caldwell.

52. (II) European Governments.—Forms and methods of the governments of Europe: historic types and theories of government, progress and problems of democracy; dictatorships and totalitarian governments. Special study of the governments of England, France, Switzerland, Italy, Germany, and Russia.

3 class hours. Credit, 3.

11:00-11:50 M. W. F. Professor Mackimmie.

53. (I) International Relations.—A course dealing with the development and practices of international relations, the diplomatic and consular services of states, the nature of nationalism and imperialism, the basic factors determining a nation's foreign policy, and the earlier evolution toward supra-national government.

3 class hours. Credit, 3.

Assistant Professor Pierce.

54. (II) The Far East in Modern Times (1948-49).—After a brief and selective survey of earlier Oriental history and culture the emphasis is upon India, China, and Japan since the impact of western technology. Considerable attention is paid to contemporary political, economic, and diplomatic problems. Given in alternate years.

3 class hours. Credit, 3.

Assistant Professor Pierce.

56. (II) THE HISTORY OF MODERN RUSSIA (1947-48).—This course is a study of Russia in both Europe and Asia since 1800. The major topics considered are: Tsarist government and society; diplomacy and expansion; political, intellectual, and economic unrest; reforms and the Duma; World War I and the Communist Revolution; recognition and experimentation; World War II; the U.S.S.R. as an Eurasian World Power. Given in alternate years.
3 class hours. Credit, 3.
Assistant Professor PIERCE.
Prerequisite, History 6 or 53 or 54.

57. (I) 58. (II) HISPANIC-AMERICAN HISTORY.—A general course in the history and civilization of the Americas south of the United States. The first semester deals with the periods of exploration, organization, and revolution to 1824; the second semester, with the period of national independence and growth from 1824 to the present. Either semester may be elected independently.
3 class hours. Credit, 3.
Assistant Professor PIERCE.

59. (I) 60. (II) HISTORY OF THE UNITED STATES.—A survey of the national development including political, social, economic, and cultural factors in the growth of American democracy. The first semester covers the period to 1865; the second, from 1865 to the present. Either semester may be elected independently.
3 class hours. Credit, 3.
Professor CARY.

61. (I) ANCIENT GREEK HISTORY (1949-50).—Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor MACKIMMIE.

63. (I) ANCIENT ROMAN HISTORY (1948-49).—Given in alternate years.
3 class hours. Credit, 3
8:00-8:50 M. W. F. Professor MACKIMMIE.

65. (I) NINETEENTH AND TWENTIETH CENTURY ENGLAND (1949-50).—Victorian society and ideals; Industrial Revolution and its effects; growth of democracy; imperial development. Emphasis on social conditions and thought movements. Given in alternate years.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor CALDWELL.
Prerequisite, History 32.

67. (I) TUDOR AND STUART ENGLAND (1948-49).—A brief survey of the Tudor Period followed by a detailed study of Early Stuart England. Particular emphasis is placed on social, religious, and intellectual aspects of English life in the period. Given in alternate years.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor CALDWELL.
Prerequisite, History 31 or 32.

69. (I) EUROPE, 1870-1918.—Internal developments of the principal countries, including political and economic changes, social unrest, and intellectual currents; the development of imperialism; a detailed study of conditions and diplomacy which led to the World War; military history of the War.

3 class hours. Credit, 3.
Professor CALDWELL.
Prerequisite, History 6 or 32.

70. (II) EUROPE SINCE 1918.—A continuation of History 69, but may be elected independently. Approximately half of the course is devoted to international affairs, including the Peace Settlement, the development of German, Italian, and Japanese aggression, and World War II. The other half of the course is a study of internal developments in the principal European nations.

3 class hours. Credit, 3.
Professor CALDWELL.
Prerequisite, History 6 or 32, or permission of the instructor.

75. (I) MEDIEVAL EUROPE.—Europe from the barbarian invasions to the Renaissance. Social and economic conditions, development of national monarchies, the Church and religion, medieval culture.

3 class hours. Credit, 3.
Professor CARY.

76. (II) HISTORY OF THE RENAISSANCE.—For seniors only. The later Middle Ages; the Church at the height of power; the rise of nationalities; the Italian towns; the New Learning and its relation to art, science, invention, geographical discoveries; spread and effects of the Renaissance.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor MACKIMMIE.

81. (I) DIPLOMATIC HISTORY OF THE UNITED STATES, 1776-1900.—The history of American foreign policy and its basic factors to the end of the nineteenth century.

3 class hours. Credit, 3.
Prerequisites, History 59 and 60 or permission of instructor.

82. (II) DIPLOMATIC HISTORY OF THE UNITED STATES SINCE 1900.—The history of the United States as a world power.

3 class hours. Credit, 3.
Prerequisites, History 59 and 60 or permission of instructor.

91. (I) HISTORICAL BIBLIOGRAPHY.—The student will be expected to know the principal secondary works and some of the more important source collections in various fields of history. Training in the assembling of a bibliography on special topics. By arrangement with the department.

Credit, 1.
The DEPARTMENT.

92. (II) SEMINAR.—Principles of historical criticism and research. By arrangement with the department.

Credit, 1.
The DEPARTMENT.

HOME ECONOMICS

Professor MITCHELL, Assistant Professor BRIGGS, Assistant Professor MERRIAM, Assistant Professor COOK, Assistant Professor PIATT, Miss DAVIS, Mrs. THIES.

1. (I) INTRODUCTION TO HOME ECONOMICS.—The course introduces the student to the objectives in Home Economics and the fields of specialization for which it prepares. Consideration is given to a philosophy of living which emphasizes the responsibility of a woman to her family, to her community wherever she is, and to the world. Introductory work is offered in food and nutrition, child development and family life. Laboratory work includes food selection and simple preparation, and observation in the Nursery School.

2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-9:50 Tu. Th. S. reserved for special group projects.

Assistant Professor PIATT.

2. (II) CLOTHING SELECTION.—A study of the principles of clothing selection in order to assist each student to choose satisfactorily line, color, and texture. Fundamentals of construction for cotton and linen.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

Assistant Professor BRIGGS.

26. (II) TEXTILES.—A study of fiber, yarn, finish, color and design. Acquaintance with a wide variety of fabrics is afforded to develop judgment in buying and using materials for clothing and home furnishing.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

Assistant Professor BRIGGS.

30. (II) FOODS AND FOOD PREPARATION.—A study of fundamental principles and comparative methods of food preparation and home preservation, with emphasis on the nutritional and economic aspects of foods.

2 class hours; 1 3-hour laboratory period. Credit, 3.

Miss DAVIS.

31. (I) APPLIED DESIGN.—Art principles are studied with many practical applications for selecting and arranging. Specific problems in decorating cloth, wood, and leather afford opportunity for individual expression.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

Assistant Professor BRIGGS.

51. (I) FOOD SELECTION AND MEAL PLANNING.—Meal planning, serving and etiquette with emphasis on well-balanced meals as to nutritive value and economy of money, time, and labor in preparation. Further study of food principles and techniques of cookery.
2 class hours; 1 4-hour laboratory period. Credit, 3.
Miss DAVIS.
Prerequisite, Home Economics 30; Chemistry 31 and 32.

52. (II) NUTRITION AND DIETETICS.—A study of the fundamentals of normal nutrition including energy needs, the metabolism of proteins, carbohydrates, fats, vitamins, and minerals; and the quantitative requirements for these various essential nutrients. Laboratory work provides for further study of the composition of foods and their contribution to the diet and the relationship of the nutritive value to cost. Nutritive loss due to cooking, storage, etc. is given consideration.
3 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor COOK.
Prerequisites, Home Economics 30; Chemistry 31 and 32 or Physiology 32.

54. (II) NUTRITION.—For students who are not majoring in Home Economics and who do not have prerequisites for Home Economics 52. This course is designed to interpret the technical knowledge of foods and nutrition in terms of its practical application for optimum health.
2 class hours. Credit, 2.
Assistant Professor COOK.

56. (II) FOOD PREPARATION AND MEAL PLANNING.—For students not majoring in home economics. This course is designed to meet the needs of those who wish a general knowledge of the basic food principles. It will include latest methods and techniques of cookery, conservation of nutrients, menu planning and food preparation, buying of food, consumer education and table service, decoration and etiquette. It is recommended for students who want a scientific as well as practical knowledge of food and its preparation for everyday use.
2 class hours; 1 3-hour laboratory period. Credit, 3.
Miss DAVIS.

57. (I) CLOTHING SELECTION AND SIMPLE CONSTRUCTION.—For students not majoring in home economics. This course is designed to stimulate an interest in good workmanship. Emphasis is given to construction technique such as fitting, pattern use and altering.
2 3-hour laboratory periods. Credit, 2.
Assistant Professor BRIGGS.

60. (II) HOUSEHOLD EQUIPMENT AND TECHNIQUES.—Selection, care and operation of household equipment and the study of the mechanical principles involved. Demonstrations in home refrigeration, ranges, small electrical appliances, home wiring and home lighting are given. Field trips are planned to see new equipment not available on campus by arrangement.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor MERRIAM.

61. (I) CLOTHING DESIGN AND CONSTRUCTION.—Principles of construction are given through the use of commercial patterns and handling of wash fabrics. Flat pattern design is stressed with each student making her own design in silk or rayon.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor BRIGGS.
Prerequisite, Home Economics 2 or 57 or equivalent.

62. (II) HOME FURNISHING.—A study of the fundamental principles which underlie the successful planning and furnishing of a satisfying home. A study of period homes and furnishings is included. Many applications of these principles are worked out in practical problems.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 W.; 1:00-2:50 M. F. Assistant Professor BRIGGS.

75. (I) ECONOMICS OF THE HOUSEHOLD.—A study of personal and family standards of living in the modern home, the economic relations of the household, and the use of time, energy, and money as a means to influence the home situation.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Assistant Professor MERRIAM.

77. (I) and (II) HOME MANAGEMENT PRACTICE.—Successive groups of seniors live in the home management house and assume responsibilities involved in managing a home. Meals are planned on low, medium, and high income levels.

Credit, 3.
Assistant Professor MERRIAM.
Prerequisites, Home Economics 51, 52, and 75, or by special permission.

79. (I) CHILD NUTRITION.—A study is made of nutritional needs from prenatal life through infancy and childhood. Methods of judging nutrition, also causes and effects of malnutrition are discussed. Menus for children and measures to insure the consumption of optimal diets are put into practice with laboratory work in the Nursery School.

3 class hours. Laboratory by arrangement. Credit, 3.
Assistant Professor COOK.
Prerequisite, Home Economics 52 or 54.

80. (II) FAMILY LIFE.—A study of the modern family; ideals and responsibilities of the home and the individual's share in developing positive family relationships.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor PIATT.

81. (I) METHODS OF TEACHING HOME ECONOMICS.—A study of General education philosophy; the application of home economics to the entire school program; development of curricula based upon student needs;

exploration of instructional methods and techniques. This course gives credit toward meeting state standards for teachers. During the last month a two-hour laboratory period replaces one lecture.

3 class hours. Credit, 3.
Assistant Professor PIATT.

83. (I) and (II) STUDENT TEACHING IN HOME ECONOMICS.—Observation and supervised teaching are carried on in the home economics classes in the nearby junior and senior high schools. Credit, 3.
Assistant Professors MERRIAM and PIATT.
Prerequisite, Home Economics 81 or its equivalent.

84. (I) and (II) PROBLEMS IN HOME ECONOMICS.—By arrangement with the Dean of the School. An intensive application of home economics to special problems.

2 class hours; 1 2-hour laboratory period. Credit, 3.
HOME ECONOMICS STAFF.

86. (II) CHILD DEVELOPMENT.—A study of the growth and development of the child, the care of children at various ages, treatment in behavior problems, and the influence of environment in shaping personality. The Nursery School provides a laboratory for this course.

3 class hours. Credit, 3.
8:00-8:50 M. W. F. Assistant Professor, Mrs. THIES.

87. (I) PRINCIPLES AND PRACTICES OF TAILORING.—Emphasis on handling of wool in the making of suits and coats.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Assistant Professor BRIGGS.
Prerequisite, Home Economics 61 or equivalent.

88. (II) APPLIED DRESS DESIGN.—Costume design by drawing and draping, using textures of unusual nature. Emphasis will be placed on fitting and adapting design to the figure.

3 2-hour laboratory periods. Credit, 3.
Assistant Professor BRIGGS.
Prerequisite, Home Economics 87 or equivalent.

89. (I) DIET THERAPY.—The application of nutrition principles to diet in disease. Recent theories of dietary treatment of gastro-intestinal disorders, obesity, anemia, fevers, diabetes, food allergy, cardiovascular and biliary tract diseases are reviewed critically. Students are required to use and be familiar with current medical literature as it applies to nutritional problems in disease and at the same time be open-minded regarding new development in this field. Scientific and medical terminology is emphasized.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor COOK.
Prerequisites, Home Economics 52; Chemistry 79; Physiology 32.

90. (II) NUTRITION SEMINAR.—For qualified seniors. Reading and oral reports of scientific literature and preparation of bibliographies.

1 class hour. Credit, 1.

Assistant Professor COOK.

91. (I) 92. (II) INSTITUTIONAL FOODS AND MANAGEMENT.—For qualified seniors interested in institutional food service. A study of the principles of organization, personnel management, the administration, food costs, operating expenses, and the special functions of the dietitian. Laboratory work at the College Dining Hall and dormitories. It is expected that students will enroll for the work of both semesters. Students wishing to qualify for administrative institutional work are advised to take Economics 81.

First semester, 1 class hour; 1-4-hour laboratory period. Credit, 3.
Second semester, 2 class hours; 1 2-hour laboratory period.

Assistant Professor COOK.

Prerequisite, Home Economics 51 and 52.

93. (I) EXPERIMENTAL FOODS.—The testing and comparing of different food materials and methods of preparation, including advanced work in the science and techniques of cookery. Special individual problems will be studied. The course is helpful to those interested in commercial food testing and valuable to those wishing to develop a scientific approach to the study of foods.

2 2-hour laboratory periods. Credit, 2.

Miss DAVIS.

Prerequisites, Home Economics 51; and permission of instructor.

HYGIENE

HYGIENE.—All freshmen are required to attend a series of lectures on personal hygiene. For men students these lectures are included in the Military program; for women students they are scheduled for second semester.

Credit, 1.

THE HEALTH SERVICE STAFF.

LANDSCAPE ARCHITECTURE

Professor OTTO, Professor BLUNDELL, Assistant Professor ROBERTSON, Mr. PROCOPIO, Mr. MACIVER.

Landscape Architecture

25. (I) FREEHAND DRAWING AND ELEMENTARY DESIGN.—For majors in landscape architecture. The work in this course is to supply the student with some of the technical aspects of freehand drawing and design necessary to proficiency in that field, and includes simple freehand drawing of elementary forms such as trees, shrubs, and other entourage of the designed garden, together with work in lettering and an approach to the elements of design.

2 3-hour laboratory periods. Credit, 3.
1:00-3:50 Tu. Th. Mr. MACIVER.

26. (II) LANDSCAPE DRAFTING.—This course continues the work in Art 25, but draws on the mechanical aspects of the designers problems and includes simple projections—orthographic, perspective, and isometric —and combines these with shades and shadows to help develop the drawing ability of the student. With this also is included the more or less mechanical aspects of rendering architectural and landscape plans and elevations.

2 3-hour laboratory periods. Credit, 3.
1:00-3:50 Tu. Th. Mr. MACIVER.

51. (I) ELEMENTS OF TOPOGRAPHY AND CONSTRUCTION.—Contour interpolation, grading and drainage plans, drive design, profiles and sections, computation of earth work. Application of surveying to landscape construction.

3 2-hour laboratory periods. Credit, 3.
1:00-2:50 M. W. F. Professor OTTO.
Prerequisites Civil Engineering 25, Landscape Architecture 26.

52. (II) CONSTRUCTION DETAILS.—A series of problems in architectural garden features as walks, steps, walls, gates, pools, and small structures.

3 2-hour laboratory periods. Credit, 3.
1:00-2:50 M. W. F. Professor OTTO.
Prerequisite, Landscape Architecture 51.

53. (I) GARDEN DESIGN.—Fundamental principles of composition with application to problems in the design of gardens and small home grounds.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor OTTO.
Prerequisites, Landscape Architecture 25 and 26 or permission of the instructor.

54. (II) GENERAL DESIGN.—A series of problems in the design of small properties, estates and parks. At some time during the semester the members of this class will be required to take a two-day field trip to visit typical examples of design; approximate cost, $8.00.

3 2-hour laboratory periods. Credit, 3.
Professor OTTO.
Prerequisites, Landscape Architecture 51, 53, and concurrently 52.

76. (II) CIVIC ART.—A survey of the principles and applications of modern civic art, including city planning, regional planning and the design of various types of land areas.

3 2-hour laboratory periods. Credit, 3.
3:00-4:50 M. F.; 1:00-2:50 W. Professor OTTO.
Prerequisites, Landscape Architecture 51 and 52.

79. (I) CONSTRUCTION AND MAINTENANCE (1949-50).—A study of construction methods and the maintenance of estate, park, and recreation areas. Given in alternate years.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor BLUNDELL.

80. (II) HISTORY AND LITERATURE OF LANDSCAPE ARCHITECTURE.—A review of the significant history and literature of landscape architecture and the allied fields of city planning, regional planning, and highway improvement. Compilation of bibliographies on various phases of these fields.

2 class hours. Credit, 2.
8:00-8:50 Tu. Th. Professor BLUNDELL.

81. (I) 82. (II) ADVANCED DESIGN.—Class B Exchange Problems plus specialized study of landscape details and a summary of general design. At some time during the year the members of the class may be required to take a two-day field trip to visit typical examples of design; approximate cost, $10.00.

3 2-hour laboratory periods. Credit, 3.
Assistant Professor ROBERTSON.
Prerequisites, Landscape Architecture 53 and 54.

83. (I) ARCHITECTURE (1948-49).—The history of architectural development, including styles of architecture and construction principles of value to the landscape architects when working with architectural problems. Interior arrangement of rooms and their decoration details will also be considered. Given in alternate years.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor ROBERTSON.

84. (II) SKETCHING.—Drawing and sketching in various mediums from outdoor and indoor subjects.

2 2-hour laboratory periods. Credit, 2.
1:00-2:50 M. F. Mr. MACIVER.

Horticulture

1. (I) PLANT PROPAGATION.—This course serves as an introduction to the field of horticulture, emphasizing the methods and principles involved in the propagation of horticultural plants.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor THAYER, Mr. PROCOPIO.

26. (II) PLANT MATERIALS.—Detailed study of deciduous and evergreen trees, with special reference to their mature form and character, means of identification, natural associations, and uses of the various types of trees in landscape work.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor BLUNDELL.

51. (I) PLANT MATERIALS.—Detailed study of shrubs and woody vines, and their identification, with especial emphasis being given to their adaptability to the various landscape uses, methods of handling, and care.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

Professor BLUNDELL.

52. (II) PLANTING DESIGN.—A study of the utilization of plant materials in combination as applied to the many conditions and demands of landscape work.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

Professor BLUNDELL.

Prerequisites, Horticulture 26 and 51.

MATHEMATICS

Professor ANDERSEN, Professor MOORE, Professor MACHMER, Assistant Professor BOUTELLE, Assistant Professor SCHOONMAKER, Mr. BEYTES. Mr. BUZZELL, Mr. SKILLINGS

Courses 3 and 4 are recommended for all non-engineering students who have adequate preparation. Majors in Engineering take courses 5 and 6.

3. (I) ALGEBRA AND PLANE TRIGONOMETRY (as offered at the University of Massachusetts at Fort Devens).—A rapid review of fundamentals in algebra with a thorough study of the quadratic and quadratic systems. Other topics include the binomial theorem, variation, inequalities, theory of equations, determinants, complex numbers and De Moivre's Theorem. Trigonometry includes the solution of right and oblique triangles, the solution of trigonometric equations and identities, the graphs of the trigonometric functions.

4 class hours. Credit, 4.

4. (II) TRIGONOMETRY AND PLANE ANALYTIC GEOMETRY (as offered at the University of Massachusetts at Fort Devens).—A continuation of the study of plane trigonometry. Development of formulas. Solution of trigonometric equations in Cartesian and polar coordinates. DeMoivre's Theorem and its applications. A study of the properties of the line and conic sections. Representation of loci of certain higher plane curves.

3 class hours. Credit, 3.

Prerequisite, Mathematics 3.

The DEPARTMENT.

5. (I) 6. (II) PLANE TRIGONOMETRY; PLANE AND SOLID ANALYTIC GEOMETRY AND DIFFERENTIAL CALCULUS.—For engineering majors.

4 class hours. Credit, 3.

The DEPARTMENT.

7. (I) ALGEBRA AND TRIGONOMETRY.—For all freshmen, except majors in Engineering, who are required to take a full year of college mathematics. Fractions, quadratic equations, exponents, logarithms, variation, determinants of the second and third orders, and plane trigonometry.
3 class hours. Credit, 3.
The DEPARTMENT.

8. (II) ALGEBRA.—This course is designed for the freshmen who do not plan to proceed to Calculus. Theory of equations, progressions, mensuration, number systems, and the elements of statistics and mathematics of investments.
3 class hours. Credit, 3.
The DEPARTMENT.

10. (II) ALGEBRA AND ANALYTIC GEOMETRY.—This course is designed for the freshmen who plan to take Calculus. Theory of equations, binomial theorem, determinants of higher order, and plane analytic geometry.
3 class hours. Credit, 3.
The DEPARTMENT.
Prerequisite, Mathematics 7.

12. (II) FUNCTIONAL MATHEMATICS.—For freshmen who are not required to take a full year of college mathematics. Fractions, percentage, linear and quadratic equations with applications, exponents, logarithms, slide rule, proportion, graphs, statistics, progressions, and the elements of mathematics of investments.
3 class hours. Credit, 3.
Assistant Professor SCHOONMAKER.

27. (I) PLANE ANALYTIC GEOMETRY.—This course is designed for those who have had Mathematics 7 and 8 or their equivalents and who wish to prepare for later work in the calculus. It is not open to those who have received credit in Mathematics 3 and 4.
3 class hours. Credit, 3.
Prerequisite, Mathematics 8. The DEPARTMENT.

29. (I) DIFFERENTIAL CALCULUS.—The basic ideas and methods of the differential calculus. The course aims to give the student a realization of the power of the calculus as an instrument of analysis.
3 class hours. Credit, 3.
The DEPARTMENT.
Prerequisite, Mathematics 10 or 27.

30. (II) INTEGRAL CALCULUS.—A continuation of Mathematics 29 into the field of the integral calculus, with special emphasis on application to problems.
3 class hours. Credit, 3.
The DEPARTMENT.
Prerequisite, Mathematics 29.

31. (I) 32. (II) DIFFERENTIAL AND INTEGRAL CALCULUS; ELEMENTS OF DIFFERENTIAL EQUATIONS.—For engineering majors. A continuation of Mathematics 6.
4 class hours. Credit, 4.
Prerequisite, Mathematics 6. The DEPARTMENT.

31. (I) ANALYTICAL GEOMETRY AND CALCULUS (as offered at the University of Massachusetts at Fort Devens).—An integrated course designed for engineering, physcial science, and mathematics majors. Analytic geometry of the straight line and of the conic sections, their graphs, tangents and normals. Fundamental ideas of the calculus, sequences, limits, continuity, the derivative, higher order derivatives, maxima and minima, Theorem of the Mean, L'Hospital's Rule, the differential. Indefinite and definite integrals. Applications throughout to problems in geometry and mechanics such as determination of velocity, acceleration, areas, volumes, work, pressure, etc.

4 class hours. Credit, 4.

Prerequisite, Mathematics 3 or equivalent with grade of "B" or better.

32. (II) ANALYTIC GEOMETRY AND CALCULUS (as offered at the University of Massachusetts at Fort Devens).—A continuation of Mathematics 31. The differentiation, integration and graphs of exponential and logarithmic functions. Parametric representation of curves and polar coordinates. Motion on a curve. Elementary vectors in a plane, velocity and accelaration. Further applications to include are length, curvature, surface area, center of gravity, moment of inertia. Additional techniques of integration.

4 class hours. Credit, 4.

Prerequisite, Mathematics 31.

33. (I) ANALYTIC GEOMETRY AND CALCULUS (as offered at the University of Massachusetts at Forth Devens).—A continuation of Mathematics 31 and 32. Infinite series with real terms, the integral test, Taylor's and MacLaurin's series; complex numbers including complex series, Euler's Theorem, Hyperbolic functions; space coordinates and vectors; multiple integration in rectangular, cylindrical and spherical coordinates. Applications to areas, volumes, centroids, and moment of inertia.

4 class hours. Credit, 4.

Prerequisite, Mathematics 32.

55. (I) MATHEMATICS OF FINANCE.—The mathematical principles of simple and compound interest, annuities, depreciation, valuation of bonds, insurance. The development and application of aids to computation in problems arising from financial transactions.

3 class hours. Credit, 3.

10:00-10:50 Tu. S., 11:00-11:50 Th. Assistant Professor BOUTELLE.

Prerequisite, Mathematics 7.

60. (II) SPHERICAL TRIGONOMETRY AND SOLID ANALYTIC GEOMETRY (1947-48).—The trigonometry of the sphere with application to terrestrial and celestial problems. This is followed by a study of higher plane curves and the analytic representation of points, lines, and surfaces in space. Given in alternate years.

3 class hours. Credit, 3.

Assistant Professor BOUTELLE.

Prerequisite, Mathematics 30.

62. (II) STATISTICS.—The fundamental mathematical principles of statistical analysis. The derivation of the basic formulas used, and the study and discussion of such topics as averages, dispersion, skewness, curve fitting, least squares, linear and curvilinear correlation, probability curve, probable error, sampling, reliability.
3 class hours. Credit, 3.
Assistant Professor BOUTELLE.
Prerequisite, Mathematics 10 or 27.

65. (I) THEORY OF EQUATIONS (1949-50).—An introduction to advanced algebra. A discussion of the conditions for and methods of solving algebraic and transcendental equations; ruler and compass constructions; systems of equations; determinants and matrices; symmetric functions; resultants; discriminants; invariants; the fundamental theorem of algebra. Given in alternate years.
3 class hours. Credit, 3.
Assistant Professor BOUTELLE.
Prerequisite, Mathematics 4 or 27.

66. (II) INTRODUCTION TO HIGHER GEOMETRY (1947-48).—A study of various methods employed in the modern treatment of the geometry of points, lines, and conics. Such topics as homogeneous point and line coordinates; infinite elements; harmonic division; groups of transformations and their invariants; and the elements of projective and other geometries, will be considered. Given in alternate years.
3 class hours. Credit, 3.
Professor ANDERSEN.
Prerequisite, Mathematics 10 or 27.

71. (I) VECTOR ANALYSIS (1948-49).—The algebra and calculus of vectors. Applications to physics and other fields will be considered.
Given in alternate years.
3 class hours. Credit, 3.
Professor ANDERSEN.
Prerequisites, Mathematics 30; Physics 26.

72. (II) HISTORY OF MATHEMATICS (1948-49).—A study of the great agencies which have developed progress in mathematics. Desirable for students planning to teach mathematics. Given in alternate years.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Professor ANDERSEN.
Prerequisite, Mathematics 30.

91. (I) 92. (II) CALCULUS AND DIFFERENTIAL EQUATIONS.—A course devoted to the topics of the calculus more advanced than those encountered in Mathematics 29 and 30, such as series, expansion of functions, envelopes, partial differentiation and multiple integrals. This work is followed by a study of differential equations, a subject which dominates the field of applied mathematics.
3 class hours. Credit, 3.
8:00-8:50 M. W. F.
Professor ANDERSEN and Mr. SCHOONMAKER.
Prerequisite, Mathematics 30.

Astronomy and Meteorology

57. (I) METEOROLOGY.—A consideration of weather elements, air masses, frontal structures and storms, the construction and interpretation of weather maps and the general principles of weather forecasting.

2 class hours. Credit, 2.
8:00-8:50 Tu. Th. Professor LANPHEAR.

58. (II) ASTRONOMY.—The course deals with a consideration of the atmosphere through which astronomical phenomena are observed; fundamental conceptions of the celestial sphere, the solor system, stars, galaxies. The chief objective is to make the student alive to the beauty and order revealed in the sky.

2 class hours. Credit, 2.
8:00-8:50 Tu. Th. Professor LANPHEAR.

MILITARY

Colonel RICHARD B. EVANS, Cavalry; Lieutenant Colonel FRANCES W. NYE, Air Corps; Major HOWARD C. PARKER, Cavalry

1. (I) 2. (II) Theoretical and practical instruction in leadership, drill and exercise of command, individual weapons and marksmanship, hygiene and first aid, maps and aerial photographs, military organization, and the National Defense Act, ROTC regulations.

3 scheduled hours. First semester, Credit, 3.
Second semester, Credit, 2.
ARMY INSTRUCTORS.

25. (I) 26. (II) Theoretical and practical instruction in leadership, drill and exercise of command, physical development methods, maps, and aerial photographs, military administration, evolution of warfare, military law and boards.

3 scheduled hours. Credit, 2.
ARMY INSTRUCTORS.

51. (I) 52. (II) Theoretical and practical instruction in leadership, drill and exercise of command, military leadership, psychology and personnel management, Geographical foundation of national power, and military law and boards; tactics and technique of cavalry or armored units for students in the armored cavalry unit; tactics and techniques of the Army Air Forces for students in the air corps unit.

5 scheduled hours. Credit, 2.
ARMY INSTRUCTORS.

75. (I) 76. (II) Theoretical and practical instruction in leadership, drill and exercise of command, military teaching methods, military problems of the United States, psychological warfare, military mobilization and demobilization, command and staff operations; tactics and technique

of cavalry or armored units for students in the armored cavalry unit; tactics and techniques of the Army Air Forces for students in the air corps unit.

5 scheduled hours. Credit, 3.
ARMY INSTRUCTORS.

OLERICULTURE

Professor SNYDER, Assistant Professor TUTTLE, Mr. ——

25. (I) GENERAL OLERICULTURE.—A study of the factors affecting the growth of plants which are essential to a basic understanding of the cultural requirements of vegetable and other horticultural crops.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor SNYDER and Mr. ——.

51. (I) OLERICULTURE.—A critical study of the water and nutrient requirement of vegetable plants as applied to irrigation, soils and their preparation, manures, fertilizers, lime, green manures and crop residues.
3 class hours. Credit, 3.
Hours by arrangement. Assistant Professor TUTTLE.

52. (II) OLERICULTURE.—A study of certain environmental factors which influence the culture of vegetables as applied to actual commercial practices.
3 class hours. Credit, 3.
Hours by arrangement. Professor SNYDER.

73. (I) VEGETABLE MARKETING PRACTICES.—A consideration of the various factors, techniques, and methods in harvesting and preparing vegetables for market, including marketing centers, production areas, market and consumer preference, packing house facilities and equipment, and premarket storage. Trips to nearby growers and markets will be required at a cost of not over ten dollars.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor SNYDER.
Prerequisite, Agricultural Economics 55.

74. (II) MERCHANDISING OF PERISHABLES.—Discussion and demonstrations in this course will include the various techniques, practices, and methods that are used in selling and distributing horticultural commodities through both wholesale and retail outlets from the farm to the ultimate consumer. Trips to the Boston and New York markets may be elected by the student at a reasonable cost.
3 class hours. Credit, 3.
Professor SNYDER.

75. (I) SYSTEMATIC OLERICULTURE.—A detailed study of variety identification; nomenclature and classification; history, variety improvement and seed sources; judging and exhibiting.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Hours by arrangement. Professor SNYDER.

76. (II) GREENHOUSE CROPS AND PLANT GROWING (1948-49).—A study of the culture of greenhouse crops including cucumbers, tomatoes, lettuce, rhubarb, and mushrooms; the growing of seedling plants both under glass and in the open for local retail or wholesale business.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor SNYDER.

78. (II) COMMERCIAL OLERICULTURE.—A study of the problems in the commercial production of vegetables: general culture, fertilizers and manures, machinery, labor, harvesting, and marketing. One or two trips to important markets and truck growing sections are required. Twenty-five dollars will cover the cost of these trips.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor SNYDER.

81. (I) 82. (II) SEMINAR.—Advanced study of problems relating to vegetable production.

1 class hour. Credit, 1.
Hours by arrangement. The DEPARTMENT.

PHILOSOPHY

Professor GLICK

61. (I) FUNDAMENTALS OF PHILOSOPHY.—A general approach to the study of philosophy both from the standpoint of method and content. This course attempts to provide a background for the understanding and evaluation of theories of education, religion, ethics, metaphysics, etc.

3 class hours. Credit, 3.
8:00-8:50 or 11:00-11:50 M. W. F. Professor GLICK.

62. (II) HISTORY OF PHILOSOPHY.—A survey of the development of thought from the early Greeks to the recent past. Emphasis is placed upon the relation of philosophy to life as a whole with emphasis upon ethical, political, religious, educational, and metaphysical problems.

3 class hours. Credit, 3.
8:00-8:50 or 11:00-11:50 M. W. F. Professor GLICK.

63. (I) LOGIC.—The primary function of logic as conceived in this course is to study the rules and techniques of thinking as applied to interpreting and evaluating the facts of science and the data of experience in general. A secondary aim is to study the structures of thought from the standpoint of clearness and ease of expression and the effectiveness of conviction. Logic is considered not only as a tool but as an art as well. It should possess something of the thrill of a game rather than the mere grind of a chore.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor GLICK.

64. (II) ETHICS.—A study of the fundamental ethical theories and practices both historical and contemporary. Ethical theories are studied in relation to different types of civilization and an attempt is made to evaluate the significance of each in our present civilization.

3 class hours. Credit, 3.

9:00-9:50 M. W. F. Professor GLICK.

PHYSICAL EDUCATION FOR MEN

Professor GORE, Professor RADCLIFFE, Professor ECK, Professor LORDEN,
Associate Professor KAUFFMAN, Assistant Professor DERBY, Assistant
Professor BRIGGS, Assistant Professor ROGERS, Mr. BALL,
Mr. SALWAK, Mr. KOSAKOWSKI, Mr. MASI, Mr. BOURDEAU.

3. (I) 4. (II) PHYSICAL EDUCATION—PHYSICAL FITNESS ACTIVITY COURSE.—Planned progressively to help every man student meet reasonable minimum standards of physical fitness and through regularity and continuity of physical exercise to maintain good physical condition. The men are given physical fitness ratings and must meet minimum standards in use of obstacle course, the basic skills in several team sports, as well as learn to swim.

5 hours. Credit, 1.

Professor GORE, Assistant Professor ROGERS,
Mr. SALWAK, and the DEPARTMENT.

5. (I) PHYSICAL EDUCATION SURVEY.—A survey of the health, physical education, and physical recreation courses which make up the physical education major. This course provides an introduction to the broad field of physical education.

3 class hours. Credit, 3.

10:00-10:50 M. W. F.

Professor GORE, Assistant Professor ROGERS,
Mr. SALWAK, and the DEPARTMENT.

33 (I) 34. (II) PHYSICAL EDUCATION.—A physical fitness activity program.

5 hours. Credit, 1.

The DEPARTMENT.

63. (I) 64. (II) PHYSICAL EDUCATION.—A physical fitness activity program.

3 hours. Credit, 1.

The DEPARTMENT.

83. (I) 84. (II) PHYSICAL EDUCATION.—A physical fitness activity program.

3 hours. Credit, 1.

The DEPARTMENT.

22. (I) and (II) First Aid Instructors.—The First Aid training course includes standard, advanced, and instructor courses, leading to qualification as American Red Cross First Aid Instructor with work in athletic training techniques and accident prevention.

3 class hours. Credit, 3.

Professor Gore.

41. (I) Winter Activities.—Winter ice and snow activities programs, including skiing, skating, conduct of winter carnivals, winter sports safety; and the design, construction, and maintenance of winter sports facilities.

1 class hour; 1 2-hour laboratory period. Credit, 1.

9:00-9:50 Th.; laboratory hours by arrangement.

Professor Gore, Assistant Professor Briggs.

42. (I) and (II) Aquatics.—The aquatic course gives training in water safety, swimming, diving, canoeing, boating, life-saving, and recreational swimming, leading to possible qualification as American Red Cross Water Safety instructor.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

Hours by arrangement.

Professor Gore, Assistant Professor Rogers,
and the Department.

43. (I) Officiating.—Technique and practice in officiating major sports.

1 class hour; 1 2-hour laboratory period. Credit, 1.

11:00-11:50 F.; laboratory hours by arrangement.

Associate Professor Kauffman, Mr. Ball.

44. (II) Tests and Measurements.—This course considers the status of measurement in physical education, an historical sketch, typical contributions in anthropometrics, strength tests, ability and achievement tests, cardiac functional tests, neuro-muscular control tests, and sport technique tests; and it includes the tools of measurement, indices, and the theory and practice of test administration.

2 class hours. Credit, 2.

11:00-11:50 M. F. Mr. Salwak.

45. (I) History and Purposes of Physical Education.—A brief study of the history of the development of the various systems of physical education and a study of the aims and ideals of present-day physical education.

2 class hours. Credit, 2.

11:00-11:50 M. W. Professor Lorden.

51. (I) INTRODUCTORY COURSE FOR TEACHER-COACHES.—This course outlines the coaching of football, soccer, and basketball.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 W.
Professors ECK and LORDEN, Assistant Professor BRIGGS, Mr. BALL.

52. (II) INTRODUCTORY COURSE FOR TEACHER-COACHES.—Continuation of Course 51. This course outlines the coaching of baseball, track and field athletics, hockey, and athletic pedagogy.

2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 1:00-2:50 W.
Professor LORDEN, Assistant Professor DERBY, and the DEPARTMENT.

53. (I) PHYSICAL EDUCATION—ELEMENTARY SCHOOLS.—This course includes the objectives, organization, significance, and content of physical education in the grade schools. The course is correlated with the requirements of the State Department of Education.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; 1:00-2:50 M. Assistant Professor DERBY.

54. (II) PHYSICAL EDUCATION.—SPECIAL METHODS.—This course includes the objectives, significance, organization and content of physical education in junior and senior high school. The course is correlated with the requirements of the State Department of Education.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; 1:00-2:50 M. Assistant Professor DERBY.

56. (II) ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION.—Considers the organization and administration of a department of physical education. Design, construction, maintenance, and service considerations of physical recreational areas are studied.

2 class hours. Credit, 2.
9:00-9:50 Tu. Th. Professor HICKS.

57. (I) ORGANIZED CAMPING TECHNIQUES.—This course covers details of camping techniques from the three-fold angle of organized camp counselor, i.e., as a child counselor, as a general activities counselor, and as a specialty counselor.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor GORE.

58. (II) ORGANIZED CAMPING ADMINISTRATION.—This course includes the history of organized camping, minimum standards of health and safety, the development of camping philosophies, trends, and the camping industry.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor GORE.

59. (I) SCOUTING ELEMENTS AND PRINCIPLES.—A course in the elements and principles of scoutmastership, given in cooperation with the Scout Executive, Hampshire-Franklin Council, B.S.A.
1 class hour; 1 2-hour laboratory period. Credit, 2.
Hours by arrangement. Professor GORE.

71. (I) 72. (II) SPECIAL PROBLEMS COURSES.—Presentation and discussion of research work in physical education, physical recreation, health and safety education, or athletics.
3 class hours. Credit, 3.
Hours by arrangement. Professor GORE and the DEPARTMENT.

73. (I) RECREATION—ADMINISTRATION AND ORGANIZATION.—Administration and organization of recreational areas, including playground layouts, equipment supplies, maintenance, leadership, training activities, conduct of programs, and problems of operations.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor GORE.

74. (II) RECREATION—RECREATION LAND USE.—Including types of recreational areas, recreational resources, recreational needs of the people, geography of recreation, competitors of recreational land use, economic aspects of federal, state, and local recreational systems.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor GORE.

76. (II) ANATOMY GENERAL.—A course in structural human anatomy.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Dr. RADCLIFFE.

78. (II) ANATOMY APPLIED—KINESIOLOGY.—A course aimed to give the anatomical application basal to a thorough understanding of the mechanical problems in apparatus, athletic, and corrective exercises.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Dr. RADCLIFFE.
Prerequisite, Physical Education 76.

PHYSICAL EDUCATION FOR WOMEN

Miss TOTMAN, Mrs. GASKILL, Miss HUBBARD, Miss WAGNER

7. (I) 8. (II) PHYSICAL EDUCATION.—Students are required to participate in one term of dancing and in one team sport. Except for these requirements, all unrestricted students may select any activity which is offered. Fall season: field hockey, volleyball, soccer, archery, tennis, swimming. Winter season: basketball, volleyball, badminton, swimming, life saving (by permission), modern dance, square dance, calisthenics, posture training. Spring season: softball, soccer, archery, swimming, modern dance.
3 class hours. Credit, 2.
The DEPARTMENT.

27. (I) 28. (II) PHYSICAL EDUCATION.—The activities offered in Courses 7 and 8 are continued. In addition, advanced modern dance is offered in the fall season and water safety instruction in the winter season. Unrestricted students may select any activity which is offered.
3 class hours. Credit, 2.
The DEPARTMENT.

61. (I) 62. (II) PHYSICAL EDUCATION.—Participation in the activity classes for freshmen and sophomores, with the purpose of gaining further skill and developing physical fitness.
3 class hours. Credit, 1
The DEPARTMENT.

81. (I) 82. (II) PHYSICAL EDUCATION.—Participation in activity courses for physical fitness with opportunity to learn refereeing in sports and to assist in teaching individual sports.
3 class hours. Credit, 1
The DEPARTMENT.

PHYSICS

Professor POWERS, Associate Professor ALDERMAN,
Assistant Professor ROSS, Assistant Professor BURPO, Mr. WANNLUND,
Mr. CROOKER.

25. (I) MECHANICS, SOUND, AND HEAT.—This course is largely a study of the following and related topics: equilibrium of bodies; forms of energy and work; motion; fluids; surface tension; molecular phenomena; elasticity; wave-motion; sound; thermometry expansion; hygometry; transmission of heat; changes of state; radiation.
3 class hours; 1-2 hour laboratory period. Credit, 4.
The DEPARTMENT.

Prerequisite, Mathematics 8 or its equivalent.

25-A. MECHANICS, SOUND, AND HEAT (as offered at the University of Massachusetts at Fort Devens).—This course treats with mathematical rigor the three fields indicated, and is required of all engineers and all majors in the sciences. For it, ability in the Calculus is desirable, but is not, for the first semester, mandatory. Text: Hausmann and Slack's Physics and Laboratory Manual.
3 class hours; 1 quiz hour; 1 2-hour laboratory period. Credit, 5.
Prerequisite, practical knowledge of trigonometry, at least.

26. (II) LIGHT AND ELECTRICITY.—Includes wave-theory of light; optical instruments; analysis of light; interference; polarization; magnetism; electrostatics; production and properties of electric currents; electrical appliances and machines; oscillatory circuits; vacuum tubes, and related topics.
3 class hours; 1 2-hour laboratory period. Credit, 4.
The DEPARTMENT.

Prerequisite, Physics 25.

26-B. MAGNETISM, ELECTRICITY, LIGHT AND SOUND (as offered at the University of Massachusetts at Fort Devens).—This is a continuation of Physics 25-A, carried on in the same way and for the same type of students. Same text, but with our own Laboratory Manual.
3 class hours; 1 quiz hour; 1 2-hour laboratory period. Credit, 5.
Prerequisites, Physics 25-A and one (at least) concurrent course in Calculus.

27. (I) MAGNETISM, ELECTRICITY AND INTRODUCTORY ELECTRONICS (as offered at the University of Massachusetts at Fort Devens).—An extension and further development of the principles acquired in Physics 26-B, with applications of magnetism, electricity and DC-theory; sources of EMF; solution of characteristic network problems (beginning with Kirchhoff's Laws); basic AC-theory, with solutions of characteristic circuits in complex notation and the chief R, C and L combinations; basic VT-theory and circuits; transformers; power supplies, amplifiers, etc.
3 class hours; 1 quiz hour; 1 2-hour laboratory period. Credit, 5.
Prerequisite, Physics 25-A.

28. (II) MECHANICS, THERMODYNAMICS AND ACOUSTICS (as offered at the University of Massachusetts at Fort Devens).—The course develops the formulae with the principles of differential and integral calculus, and then applies these in the solution of typical scientific and engineering problems in these fields. The course is for such engineering and physics major students as desire to transfer to such institutions as the Massachusetts Institute of Technology, Rensselaer Polytechnic Institute, and other institutions where a one-year course in Mechanics and Heat may be required.
3 class hours; 1 quiz hour; 1 2-hour laboratory period. Credit, 5.
Prerequisites, Mathematics 31 or equivalent; Physics 26-B.

51. (I) 52. (II) MAGNETISM, ELECTRICITY, PHOTO-ELECTRICITY, THERMIONICS AND APPLICATIONS.—Course 51 deals largely with direct currents; Course 52 with alternating currents, applications of thermionics, and photo-electricity. These courses are planned to give the student a good training in theory and methods of measurement in the indicated subjects, which are useful in many fields of investigation. Modern methods are stressed and instruments of precision are used.
2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu., Th.; 10:00-11:50 Tu. or 1:00-2:50 Tu. or W.
Professor POWERS.
Prerequisites, Physics 26 and Mathematics 29 for Course 51; Physics 51 for Course 52.

55. (I) 56. (II) MECHANICS.—Development of the fundamental concepts of dynamics with applications to particles and rigid bodies in translation and rotation. One laboratory period may be substituted for one class hour.
3 class hours. Credit, 3.
1:00-10:50 M., W., F.; Laboratory by arrangement.
Assistant Professor ROSS.
Prerequisites, Physics 26; Mathematics 30.

58. (II) ELEMENTS OF PHOTOGRAPHY.—Discussion of types of cameras, lenses, films, exposure meters, processing of films and papers, enlarging, composition, color photography, photomicrography. A 2-hour laboratory period may be substituted for the class hour. Not offered in 1947-48.
3:00-3:50 W. Professor POWERS.

60. (II) SOUND AND ACOUSTICS.—A study of vibrations, vibrating bodies, coupled systems, sound structure, and acoustic properties. The work will include many applications of sound to technical and commercial fields.
3 class hours. Credit, 3.
Associate Professor ALDERMAN.
Prerequisite, Physics 55 or its equivalent.

61. (I) 62. (II) HEAT AND THERMODYNAMICS (1947-48).—A study of heat exchanges and energy changes due to heat in systems of matter. The subject material and experimental methods are useful in other branches of science. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; 2:00-3:50 Th. Associate Professor ALDERMAN.
Prerequisites, Physics 26; Mathematics 29.

63. (I) 64. (II) OPTICS (1948-49).—An intermediate course in the theory of light. Work in geometrical and physical optics is done. Precision instruments are used in the laboratory. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; laboratory hours by arrangement.
Associate Professor ALDERMAN.
Prerequisities, Physics 26; Mathematics 29.

75. (I) 76. (II) ADVANCED EXPERIMENTAL WORK IN SELECTED TOPICS.—These courses are largely experimental and the subject matter is adapted to the needs of the individual student. The research viewpoint is emphasized. The class hour is used for a course in precision of measurements.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Professor POWERS.
Prerequisites, Physics 51-52 or 55-56 or 63-64; Mathematics 29, 30.

85. (I) 86. (II) MODERN PHYSICS (1947-48)—Typical subjects studied are theories of the atom, radiation, quantum theory; spectra, X-ray analysis, nuclear reactions. Given in alternate years.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor POWERS.
Prerequisites, Physics 51, 62 and 64 or equivalent; Mathematics 29, 30.

95. (I) 96. (II) ELECTRONICS (1948-49).—Given in alternate years.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor POWERS.
Prerequisites, Physics 51, 52; Mathematics 29, 30.

PHYSIOLOGY

Professor Gage, Mr. Blair

32. (I) and (II) Physiology.—Exercises on basic biological laws are considered, so essential to the comprehension of modern physiology. The study and use of instruments are used to illustrate the various phases presented. Aspects of muscle and nerve physiology, circulation, and hemodynamics will be considered.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor Blair, Professor Gage.

75. (I) Physiology.—A continuation of Course 32. Alimentation; physiology of nutrition, including diet, calorimetry, energy exchange, and basal metabolism, followed by work on the physiology of elimination. Studies on lymphatics and ductless glands will be included. This course is especially planned to further physiological applications for students in nutrition, bacteriology, zoology, and the biological sciences.

2 class hours; 1 2-hour laboratory period. Credit, 3.
2:00-3:50 Tu. Th. Professor Gage.
Prerequisite, Physiology 32.

76. (II) Physiology (1948-49).—This is a continuation of Course 75 and is planned to make demonstrations in advanced neuro-muscular physiology, respiration, circulation and in endocrinology. This course is of particular value to advanced students who contemplate graduate study or work in physiology, serology, nutrition or bacteriology. The study and use of modern advanced methods and equipment are taught in this class. Given in alternate years.

2 class hours; 1 2-hour laboratory period. Credit, 3.
2:00-3:50 Tu. Th. Professor Gage.
Prerequisite, Physiology 75.

77. (I) Physiology.—This course is planned for those students who have studied organic chemistry and physics. It will be of service to all students in the biological sciences. The discussions and laboratory demonstrations will concern the nature of the processes underlying vital phenomena which are common to most living matter. It will deal exclusively with the fundamental principles which govern activities and life of animals and human beings.

2 class hours; 1 2-hour laboratory period. Credit, 3.
1:00-1:50 M. W.; 2:00-3:50 W. Assistant Professor Blair.
Prerequisite, Physiology 32.

79. (I) Physiology.—This is an advanced course arranged only for students who are familiar with physiological technique. The course will deal with the physiology of the special senses such as taste, smell, touch, sight, and hearing.

2 class hours; 1 2-hour laboratory period. Credit, 3.
2:00-3:50 M. F. Professor Gage.
Prerequisite, Physiology 32.

80. (II) PROBLEMS IN APPLIED PHYSIOLOGY (1947-48).—In this course will be considered physiological methods used in the arts and industries, studies on physiological efficiency, methods applied in the study of tissue function, physiological standards for military and industrial fitness, together with experiments on human and animal plant dynamics. Given in alternate years.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Physiology 32. Professor GAGE.

POMOLOGY

Professor VAN METER, Professor FRENCH, Assistant Professor ROBERTS, Mr. EVERSON

26. (II) SMALL FRUITS.—A study of the growing of raspberries, blackberries, strawberries, currants, blueberries, cranberries, and grapes, dealing with such questions as varieties, selecting a site for the plantation, soils, fertilizers, pruning, harvesting, and marketing.

2 class hours; 1 2-hour laboratory period. Credit, 3.
Professor FRENCH.

53. (I) GENERAL POMOLOGY.—A study of the most improved practices in fruit production and marketing, including such questions as the selection of orchard sites and soils, laying out and setting the orchard, the structure and growth of fruit plants; the bearing habits, pruning and training of fruits; fertilizers, pollination, and winter injury.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 Tu. Th.; 3:00-4.50 F.
Assistant Professor ROBERTS, Mr. EVERSON.

56. (II) SPRAYING.—This course is especially designed to familiarize the student with details of pest control in the orchard. It involves a study of (a) spraying and dusting machinery, including the structure and care of the principal types of pumps, nozzles, hose, and vehicles; (b) methods in the application of materials used in orchards, with the important considerations for spraying each fruit and for combating each orchard pest; (c) preparation for use of the common fungicides and insecticides.

2 class hours; 1 2-hour laboratory period. Credit, 3.
8:00-8:50 Tu. Th.; 1:00-2:50 Tu.

Assistant Professor ROBERTS.

57. (I) FRUIT JUDGING.—Practice in the selection and judging of fruit for exhibition purposes. The student has opportunity to compare fruit of the principal varieties as grown in different sections of the country and learns to identify fruit blemishes caused by various insects, diseases, and physiological disturbances. From this class a team is selected to represent the University in the New England and the Eastern Intercollegiate Fruit Judging Contests.

1 class hour. Credit, 1.
Hours by arrangement. Professor FRENCH.

75. (I) SYSTEMATIC POMOLOGY (1948-49).—A study of the more important kinds and varieties of fruits grown in the United States, their relationships and nomenclature. Particular emphasis is placed upon the identification, classification, and value of varieties including a study of the characters of the plant as well as the fruit. Given in alternate years.
1 class hour; 3 2-hour laboratory periods. Credit, 4.
9:00-9:50 Tu.; 1:00-2:50 M. W. F. Professor FRENCH.

77. (I) COMMERCIAL POMOLOGY (1949-50).—A critical consideration of the picking, handling, storing, and marketing of fruits, including a discussion of storage houses, fruit packages, methods of refrigeration, grading, and packing. This course also considers the leading American and foreign centers of fruit production as they affect our own fruit industry through competition here or abroad. A two-day market trip will be required at an approximate cost of ten dollars. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:50 W.
Assistant Professor ROBERTS, Mr. EVERSON.

81. (I) 82. (II) ADVANCED POMOLOGY.—A consideration of the scientific principles governing the growth and behavior of fruit-bearing plants. Special attention is given to the more important research work in the field of pomology.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Hours by arrangement. Professor VAN METER.
Prerequisite, Pomology 53.

83. (I) 84. (II) SEMINAR.—Advanced study of problems relating to fruit production.
1 class hour. Credit, 1.
Hours by arrangement. Professor VAN METER.

Plant Breeding

51. (I) PLANT GENETICS.—A study of the principles of genetics with emphasis on their application to plants.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor FRENCH.

52. (II) ADVANCED PLANT BREEDING.—An advanced study of genetic topics peculiar to plants, also the methods and problems of the plant breeder. Laboratory work in genetic analysis and the breeding of plants.
2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 M. W.; 10:00-11:50 F. Professor FRENCH.
Prerequisite, Plant Breeding 51.

81. (I) 82. (II) SPECIAL PROBLEMS IN PLANT BREEDING.—Qualified seniors may carry on advanced study on special topics or undertake such original investigations as time and available material will permit.
Hours by arrangement. Credit, 2.
Prerequisite, Plant Breeding 52. Professor FRENCH.

POULTRY HUSBANDRY

Professor JEFFREY, Professor SANCTUARY, Assistant Professor BANTA, Assistant Professor VONDELL

25. (I) GENERAL POULTRY.—Not open to students majoring in poultry husbandry. A general course giving an introduction to the breeds of poultry, the principles and practice of breeding, incubation, and poultry nutrition, brooding and rearing, houses and equipment, management practices, marketing poultry products, and the business of poultry keeping.

2 class hours; 1 2-hour laboratory period. Credit, 3.

9:00-9:50 M. F.; 10:00-11:50 or 1:00-2:50 or 3:00-4:50 Tu.
Professor JEFFREY.

52. (II) INCUBATION AND BROODING.—This course is based upon the actual operation of incubators and brooders. Each year a research project is planned and data obtained concerning the effects of various incubator adjustments upon malpositions and maldevelopment of embryos and the percentage of hatch. Studies of temperature gradients, chick behavior and development are made in brooding with various types of equipment. Analysis is made of common and unusual field problems.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

10:00-10:50 Tu.; 3:00-4:50 Th.; other hours by arrangement.
Professor SANCTUARY.

53. (I) POULTRY JUDGING.—Physiological and anatomical characters are used in production judging. The American Standard of Perfection is employed in a study of the more popular breeds and varieties, and for exhibition judging. Judging teams competing in the Eastern Intercollegiate Contest are trained in this course.

1 class hour; 2 2-hour laboratory periods. Credit, 3.

8:00-8:50 Tu.; 1:00-2:50 W. F. Assistant Professor BANTA.

55. (I) POULTRY HOUSING AND SANITATION.—In this course are considered the biological factors related to the proper physical environment necessary for growth, health, and reproduction. Various systems of ventilation and methods of insulation are studied and demonstrated by models. Humidity, temperature, and condensation studies are made at the poultry plant with varying adjustments of ventilation devices. A study is made of modern equipment. Sanitation from the standpoint of disease prevention practices is also considered.

1 class hour; 1 2-hour laboratory period. Credit, 2.

11:00-11:50 Tu.; 3:00-4:50 Th. Professor SANCTUARY.

56. (II) POULTRY NUTRITION.—A study of the scientific principles of nutrition, classification and identification of feedstuffs, formulation and calculation of rations for specific purposes. A class trip may be arranged.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu., Th.; 1:00-2:50 W. Assistant Professor BANTA.

75. (I) Marketing Poultry Products.—A study of the preparation and grading methods of eggs and poultry products to meet the requirements of the northeastern markets. The laboratories are designed to cover the fields of modern dressing, processing and packaging of poultry; as well as grading, candling and quality studies of eggs. A one-half day class trip to Springfield markets in December is required. Estimated cost, two dollars.

1 class hour; 1 2-hour laboratory period. Credit, 2.
10:00-10:50 Tu.; 3:00-4:50 W. Assistant Professor Vondell.

76. (II) Turkey Production.—This course includes the production of ducks and geese but most of the time is given to the turkey industry; its importance, breeds, breeding, incubation, brooding, feeding, finishing, marketing, etc.

1 class hour; 1 2-hour laboratory period. Credit, 2.
1:00-1:50 M.; 1:00-2:50 W. Assistant Professor Vondell.

77. (I) Poultry Breeding.—The improvement of poultry by selection is developed through a study of the principles of heredity. The inheritance of morphological and physiological characters including plumage color, egg production, meat production, hatchability, egg traits, and disease resistance.

2 class hours; 1 2-hour laboratory period. Credit, 3.
11:00-11:50 M. W.; 3:00-4:50 F. Professor Jeffrey.
Prerequisite, Zoology I.

78. (II) Poultry Science Seminar.—Each student will indicate his particular line of interest and will be assigned selected readings to cover the field. If additional laboratory work is desired, a supplementary (II) problem credit may be elected.

3 class hours; 1 2-hour laboratory period may be elected. Credit, 3, 4.
10:00-10:50 M. W. F. Professor Jeffrey.

PSYCHOLOGY

Professor Neet, Assistant Professor Vallance, Mr. Feldman, Miss Phillips.

26. (I) and (II) General Psychology.—This is an introductory course dealing with the basic principles and applications of psychology with regard to the understanding and control of behavior. Topics considered include the nature and development of behavior, motivation, emotion, learning, problems of adjustment, thinking, intelligence, aptitudes, and personality.

3 class hours. Credit, 3.
The Department.

27. (I) Social Psychology (as offered at the University of Massachusetts at Fort Devens).—A study of the role and status of the individual in group life. The course includes discussion of (1) basic relations of personality to society and culture, such as the influence of stereotypes,

myths, and ideologies on the individual; (2) aspects of social conflict, which presents prejudice, revolution, and war from a socio-psychological viewpoint; (3) group behavior with particular emphasis on group attitudes and values which are studied through the media of propaganda, fashion, education, and social control.
3 class hours. Credit, 3.
Prerequisite, Psychology 26.

28. (II) Advanced General Psychology.—A detailed consideration of some of the major problems of psychology. Topics considered include motivation, emotion, neural relationships, learning, perception, and sensory processes. Stress is placed on methodology, theoretical implications, and recent investigations.
3 class hours. Credit, 3.
Mr. Feldman.
Prerequisite, Psychology 26.

51. (I) Experimental Psychology.—This course is designed to give an understanding of the problems, experimental methods, and research techniques in psychology. One of the aims of the course is the development of an experimental attitude concerning behavior as outlined in psychology.
2 class hours; 1 2-hour laboratory period. Credit, 3.
1:00-1:50 Tu. Th.; laboratory hours by arrangement.
Prerequisite, Psychology 26. Mr. Feldman.

55. (I) Educational Psychology.—This is a study of the psychological information, principles, and teachings fundamental to the educational process. Topics considered include native abilities, mental growth, social growth, individual differences, intelligence, interests, emotion, motivation, learning, and transfer of training.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor Vallance.
Prerequisite, Psychology 26.

61. (I) Social Psychology.—A study of the psychological bases of group behavior with a view toward a better understanding and control of one's roles in group life. The major topics considered are: history and methods, properties and dynamics of group behavior, psychological processes underlying individual and group social adjustments, and collective behavior following social crises.
3 class hours. Credit, 3.
9.00-9.50 M. W. F. Assistant Professor Vallance.
Prerequisite, Psychology 26.

72. (II) Advanced Experimental Psychology.—The literature, techniques, and apparatus of experimental psychology are considered in detail, and selected projects are carried out individually by the members of the class.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 Tu.; laboratory hours by arrangement. Professor Neet.
Prerequisite, Psychology 51.

82. (II) INDIVIDUAL INTELLIGENCE TESTING.—A study and evaluation of individual intelligence tests. The specialized abilities needed in the use of the most important tests of this type are developed in the laboratory. These abilities are required of trained psychometrists. Hereafter offered in first semester.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 Tu.; laboratory hours by arrangement. Miss PHILLIPS.
Prerequisite, Psychology 26.

83. (I) ABNORMAL PSYCHOLOGY AND MENTAL HYGIENE.—A study of the causes, prevention, symptoms, and treatment of behavior abnormalities with a view toward better understanding and control of oneself. Special attention is given to the following: sensory and motor disorders, speech problems, memory losses and other disorders of association, emotional extremes, feeblemindedness, the neuroses and psychoses.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor NEET.
Prerequisite, Psychology 26.

86. (II) INDUSTRIAL PSYCHOLOGY.—The course aims to give understanding of the psychological principles and methods in employment, interviewing, training, management and motivation, promotion, accident prevention and fatigue.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor VALLANCE.
Prerequisite, Psychology 26.

88. (II) PSYCHOLOGY OF GUIDANCE.—A study of the psychological principles, techniques and tests necessary in guidance. Tests and scales used in measuring intelligence, interests, aptitudes and personality traits are studied and evaluated. Practice is given in administering and scoring tests, and in the use of other guidance procedures.

2 class hours; 1 2-hour laboratory period. Credit, 3.
9:00-9:50 Tu. Th.; laboratory hours by arrangement.
Prerequisite, Psychology 26. Miss PHILLIPS.

90. (II) CONTEMPORARY PSYCHOLOGIES.—A study of the history and present status of the schools of psychology with an evaluation of the various theories and principles of each as they relate to the fields of psychology and to problems of human behavior. The following schools are considered: structuralism, functionalism, Gestalt Psychology, behaviorism, purposivism, psycho-analysis, and topological psychology.

3 class hours. Credit, 3.
2:00-2:50 M. W. F. Professor NEET.
Prerequisite Psychology 26.

91. (I) CHILD AND ADOLESCENT PSYCHOLOGY.—This course aims to develop an understanding of the behavior of the child from birth through adolescence. Psychological aspects of the following topics are considered: original nature, maturation and mental development, emo-

tions, play, social behavior, language, speech defects, learning, problems of adolescence, juvenile delinquency, moral behavior, personality and mental hygiene. Nursery school observation and practice.
3 class hours. Credit, 3.
2:00-2:50 M. W. F. Professor NEET.

Prerequisite, Psychology 26.

92. (II) CLINICAL PSYCHOLOGY.—A study of the techniques and methods involved in the diagnosis and treatment of behavior disorders. Clinical testing, counselling, and psychotherapy are given consideration.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor NEET.
Prerequisite, Psychology 83 or consent of the instructor.

95. (I) 96. (II) PROBLEMS IN PSYCHOLOGY.—For qualified seniors. The student will be allowed to do independent work and study on special problems or in certain fields of psychological interest. By arrangement with the members of the department.
Credit, 1.
The DEPARTMENT.

ROMANCE LANGUAGES

Professor FRAKER, Professor GODING, Associate Professor HELMING, Assistant Professor CLARKE, Miss ROGERS.

FRENCH

1. (I) 2. (II) ELEMENTARY FRENCH.—The essentials of grammar are rapidly taught and will be accompanied by as much reading as possible. No credits in this course may be applied toward a degree until the close of the second semester, except upon special recommendation from the Dean.
4 class hours. Credit 3
Professor GODING.

5. (I) 6. (II) INTERMEDIATE FRENCH.—Grammar review and composition. Training for rapid reading. The reading of short stories, novels, and plays. Conducted in French.
4 class hours. Credit 3.
Professor GODING, Assistant Professor CLARKE.
Prerequisites, French 1 and 2 or their equivalent.

15. (I) 16. (II) FRENCH SURVEY.—A general survey of the history of French literature and the development of French culture, with representative works of the important periods. Conducted in French.
4 class hours. Credit, 3.
Professor GODING, Professor FRAKER, Assistant Professor CLARKE.
Associate Professor GODING and Assistant Professor CLARKE.

9. (I) 10. (II) INTENSIVE ORAL PRACTICE.—May be elected only in conjunction with other courses in French.
6 laboratory periods. Credit, 3.
The DEPARTMENT.

29. (I) 30. (II) FRENCH CLASSICISM (1947-48).—Alternate with Courses 31 and 32. A survey of the Classic period, with readings from representative works.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

31. (I) FRENCH ROMANTICISM (1948-49).—Alternates with Course 29. A detailed study of the Romantic period. Readings from Hugo, de Vigny, Lamartine, de Musset, and others. Conducted in French.
4 class hours. Credit, 3.
2:00-2:50 M. F. W., 1 hour by arrangement. Professor GODING.
Prerequisites, French 7 and 8 or their equivalent.

32. (II) FRENCH REALISM (1948-49).—Alternates with Course 30. A detailed study of the Realistic period and the modern writers. Readings from Balzac, Flaubert, Stendahl, Loti, Daudet, Anatole France, and others. Conducted in French.
4 class hours. Credit, 3.
2:00-2:50 M.F.W., 1 hour by arrangement. Professor GODING.
Prerequisite, French 31.

51. (I) VOLTAIRE (1948-49).—A study of the eighteenth century through the life and works of Voltaire. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

52. (II) FRENCH LYRICISM (1948-49).—Alternates with Course 80. A study of the French lyric poets, including excerpts in modern translation from the Middle Ages and from the various modern improvements through the nineteenth century.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

79. (I) INTRODUCTION TO FRANCE (1949-50.).—A study of those elements which lie back of the cultural contribution of France to the world civilization. Subjects studied will include arts, sciences, school systems, the press, the family, social classes, influences of history and geography. The assigned readings will be drawn from contemporary French literature. Given in alternate years. Conducted in French.
4 class hours. Credit, 3.
Professor GODING.

82. (II) ADVANCED GRAMMAR AND COMPOSITION (1947-48).—Alternates with Course 72. A thorough review of grammar, pronunciation, and the phonetic method.
4 class hours. Credit, 3.
8:00-8:50 Tu. Th. S., 1 hour by arrangement. Professor GODING.

Latin

51. (I) 52 (II) LATIN.—A course in elementary Latin. No Credits in this course may be applied toward a degree until the close of the second semester, except upon special recommendation from the Dean.

3 class hours. Credit. 3.
Hours by arrangement. Associate Professor HELMING.

55. (I) 56. (II) LATIN.—A college survey of classical Latin literature: epic (Virgil), lyric (Catullus and Horace), comedy (Plautus), oratory (Cicero), and philosophy (Lucretius). The list may be varied according to the needs of particular classes.

3 class hours. Credit, 3.
Hours by arrangement Associate Professor HELMING.
Prerequisite, two years of Latin in high school or Latin 51, 52.

Spanish

1. (I) 2. (II) ELEMENTARY SPANISH.—Grammar, exercises in composition and conversation, reading of selected short stories. No credits in this course may be applied toward a degree until the close of the second semester, except upon special recommendation from the Dean.

3 class hours. Credit. 3.
11:00-11:50 M. W. F. or 10:00-10:50 Tu. S., 11:00-11:50 Th.
The STAFF.

7. (I) 8. (II) INTERMEDIATE SPANISH.—Readings from modern authors; grammar review.

3 class hours. Credit, 3.
Professor FRAKER, Miss ROGERS.
Prerequisites, Spanish 1 and 2 or three years of high school Spanish.

29. (I) THE ROMANTIC PERIOD (1948-49).—Readings from representative authors; written and oral composition. Given in alternate years.

3 class hours. Credit, 3.
Professor FRAKER.
Prerequisites, Spanish 7 and 8.

30. (II) THE MODERNISTS (1948-49).—Dario, Nervo and their contemporaries; composition and conversation. Given in alternate years.

3 class hours. Credit, 3.
Professor FRAKER.
Prerequisite, Spanish 29.

73. (I) 74. (II) THE GOLDEN AGE (1949-50).—Readings from Cervantes, Lope de Vega, Calderon, Sarcilaso and others. Composition and conversation. Given in alternate years.

2 class hours; 1 2-hour laboratory period. Credit, 3
Professor FRAKER.
Prerequisites, Spanish 7 and 8.

SOCIOLOGY

Assistant Professor Korson, Mr. Pisani

28. (I) and (II) Introduction to Sociology.—An outline of the social order, and of the individual considered as a member of his various groups.

3 class hours. Credit, 3.

Assistant Professor Korson and Mr. Pisani.

51. (I) Urban Sociology.—A comparative study of modern social conditions, social agencies, and methods of adjustment, with special reference to city environment. Characteristics of the population, urban ecology, and problems of adjustment in the fields of housing, health, education, and recreation.

3 class hours. Credit, 3.

2:00-2:50 Tu. Th., third hour by arrangement.

Assistant Professor Korson.

Prerequisite, Sociology 28 or permission of instructor.

52. (II) Rural Sociology.—A study of rural society from the standpoint of its population, institutions, standards of living, and their relation to urban society.

3 class hours. Credit, 3.

Assistant Professor Korson.

53. (I) An Introductory Study of Cultural Anthropology.—A non-technical sociological study of man in prehistoric societies.

3 class hours. Credit, 3.

Mr. Pisani.

Prerequisite, Sociology 28.

54. (II) American Race Relations.—The social, economic, and political aspects of racial problems in the United States, with particular reference to the Negro and major ethnic groups. A rabbi, minister, and priest are invited to address the class, and visits are made to the respective churches. In addition, a visit to the African Methodist Episcopal church of Amherst is made.

3 class hours. Credit, 3.

10:00-10:50 M. W. F. Assistant Professor Korson.

57. (I) The Family.—The history and development of the customs of courtship and marriage from primitive society to the American family. The basic causes of changes and trends of the family are considered. The folkways and mores of marriage in other societies are also studied.

3 class hours. Credit, 3.

11:00-11:50 M. W. F. Assistant Professor Korson.

61. (I) Population Problems.—An analytical study of population trends and problems of the world; the origin, composition, growth, migra-

tion, and urbanization of the American population. A consideration of population pressure as a cause of migratory movements.

3 class hours. Credit, 3.
Mr. PISANI.

Prerequisite, Sociology 28.

75. (I) SOCIAL PROBLEMS.—A study of abuses affecting the home, recreation, business, industry, family, welfare, public health government, mental disease, and crime. The charitable and correctional institutions of Massachusetts as agencies of reform. Visits to Belchertown State Schools, Northampton State Hospital, and Northampton Superior Court are arranged, and specialists in their fields will be invited as speakers.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor KORSON.

76. (II) INTRODUCTION TO SOCIAL WELFARE.—For senior majors and others who qualify. Contemporary problems of social concern: causes of poverty; methods of caring for adult and child dependents and defectives. A consideration of public and private agency administration and techniques, and an examination of federal, state, and local community programs.

3 class hours. Credit, 3.
Assistant Professor KORSON.

Prerequisites, Sociology 28, 51, 75.

78. (II) CRIMINOLOGY.—A study of the nature of crimes and the factors underlying criminal behavior. Attention is also given to the machinery of justice in criminal behavior: the law, the courts, police enforcement, penal and correctional institutions.

3 class hours. Credit, 3.
Mr. PISANI.

Prerequisites, Sociology 28, 75.

79. (I) 80. (II) SEMINAR.—Admission by permission of instructor. A study of the methods of research employed by sociologists. Students, under direction of the instructor, analyze and organize such sociological knowledge as they acquire through their own social service experience, and include all in a comprehensive report; projects must be approved in advance by the instructor. Credit, 3.

Hours by arrangement. Assistant Professor KORSON and Mr. PISANI.

82. (II) SOCIOLOGICAL THEORY.—An examination of the contributions of European and American writers who have concerned themselves with theories of the origin, growth, and development of human social organization.

3 class hours. Credit, 3.
Mr. PISANI.

Prerequisites, Sociology 28, 53.

SPEECH

Assistant Professor NIEDECK, Assistant Professor ROBERTSON, Mr. ZAITZ, and the DEPARTMENT OF ENGLISH.

29. (I) 30. (II) PUBLIC SPEAKING.—This course is designed to give the student instruction and opportunity in oral self-expression. It includes both public speaking and literary interpretation. Scheduled under English 25, 26.

1 class hour. Credit, 1.

The DEPARTMENT.

89. (I) DRAMATIC PRODUCTION.—This course offers instruction and practice in casting, directing, acting, make-up, lighting, and scenic design and construction.

3:00-4:50 M. W. F.; 3 2-hour laboratory periods. Credit, 3.

Assistant Professors NIEDECK and ROBERTSON.

91. (I) FORMAL DISCUSSION.—Most of the semester is devoted to formal discussion: its organization and presentation. Students are given the opportunity to lead and to participate in discussions of current problems.

3 class hours. Credit, 3.

11:00-11:50 M. W. F. Mr. ZAITZ.

92. (II) EXTEMPORE SPEECH.—The theory and practice of public speaking for business and professional purposes.

3 class hours. Credit, 3.

11:00-11:50 M. W. F. Assistant Professor NIEDECK.

VETERINARY SCIENCE

Professor LENTZ

51. (I) VETERINARY HYGIENE.—The essentials of the health of animals and specific diseases of animals are considered.

3 class hours. Credit, 3.

8:00-8:50 M. W. F. Professor LENTZ.

75. (I) COMPARATIVE VETERINARY ANATOMY.—The structure of the horse is studied and the structures of other farm animals are compared with it.

3 class hours. Credit, 3.

10:00-10:50 M. W. F. Professor LENTZ.

76. (II) GENERAL VETERINARY PATHOLOGY.—A study of fundamental, general pathological conditions; inflammation, fever, etc., and application of principles of etiology, pathogenesis, and prophylaxis of communicable and non-communicable diseases of domesticated animals.

3 class hours. Credit, 3.

11:00-11:50 M. W. F. Professor LENTZ.

88. (II) AVIAN PATHOLOGY.—Consists of lectures devoted to principles of pathology, with specific application to avian diseases. Etiology, pathogenesis, and prophylaxis will be emphasized.
3 class hours. Credit, 3.
Hours by arrangement. Professor LENTZ.
Prerequisites, Bacteriology 31 and 52; Physiology 75 and 76.

ZOOLOGY

Professor WOODSIDE, Assistant Professor TRAVER, Assistant Professor BARTLETT, Mr. NUTTING, Mr. ANDREWS, Miss TILTON.

1. (I) and (II) INTRODUCTORY ZOOLOGY.—(Constitutes one semester of the freshman course in biology). This course provides an introduction to the principles of biology, with special reference to the zoological aspects. The structure and activities of a representative vertebrate animal, the frog, are considered in detail and the knowledge thus gained is utilized in a comprehensive survey of the major groups of the animal kingdom. Brief introductions are given to the principles of classification, nutrition, structure and functions of protoplasm, genetics, heredity, development, and evolution.
2 class hours; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Tu. Th. or 11:00-11:50 M. W.; 1:00-2:50 M. F. or Tu. Th. or 3:00-4:50 M. F. or 10:00-11:50 F., 3:00-4:50 W. or 3:00-4:50 Tu., 1:00-2:50 W. or 10:00-11:50 M. W. or 3:00-4:50 Th., 10:00-11:50 S.
Professor WOODSIDE, Mr. NUTTING, Mr. ANDREWS, Miss TILTON.

25. (I) SURVEY OF THE ANIMAL KINGDOM.—The lectures deal briefly with the classification, morphology, distribution, ecology, life history, abundance, inter-relationships and economic importance of each of the phyla of the animal kingdom, with emphasis on those phyla not discussed at length in the introductory course. The laboratory work is a continuation and expansion of the work done in the introductory course, and therefore the notebook prepared in that course is required for reference in Zoology 25. Whenever possible, living representatives of each of the phyla studied will be used.
2 class hours; 1 2-hour laboratory period. Credit, 3.
10:00-10:50 M. F.; 8:00-9:50 W. or 1:00-2:50 Tu. or Th.
Prerequisite, Zoology 1.
Assistant Professor BARTLETT, Mr. NUTTING.

50. (II) HISTOLOGY OF THE VERTEBRATES.—A study of the types of tissues found in the body of vertebrate animals, and of the organs in which these tissues occur. Tissues and organs of mammals are emphasized. A knowledge of comparative anatomy is advised.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Tu.; 1:00-2:50 Tu. Th. Assistant Professor TRAVER.

51. (I) and (II) MICROTECHNIQUE OF ANIMAL TISSUES.—The course comprises (1) a consideration of the principles and methods of microtechnique as applied to animal tissues, and (2) a series of practical exercises in the preparation of animal tissues for microscopic examination.

Registration is limited to 12 students per semester. Consult instructor for section assignments.
2 2-hour laboratory periods. Credit, 2.
10:00-11:50 Tu., 1:00-2:50 W. Assistant Professor TRAVER.
Prerequisite, Zoology 1.

65. (I) 66. (II) COMPARATIVE VERTEBRATE ANATOMY.—This course is an attempt to give the student a thorough understanding of the anatomy of the principal organ systems of vertebrate animals. Animals studied in the laboratory are: protochordates, an elasmobranch fish; a caudate amphibian; a bird; and a mammal. Demonstration specimens of the other classes will be available for comparison of each of the organ systems studied. The course is arranged to run throughout the year, and is required of zoology majors. It is especially recommended for premedical students and students of historical geology and wildlife management. No credit will be given for a single semester of work.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
9:00-9:50 Th.; 3:00-4:50 M. F. or Tu. Th. or 1:00-4:50 W.
Prerequisite, Zoology 1.
Assistant Professor BARTLETT, Mr. NUTTING.

69. (I) 70. (II) ANIMAL PARASITOLOGY.—Zoology 69 deals with parasitic protozoa, flukes, and tapeworms; Zoology 70 with nematodes and their allies, leeches, ticks and mites, and a few other arthropods important as parasites or as vectors of parasites. Emphasis is placed upon the more important parasites of man and his domesticated animals: causative agents, life cycles, hosts, and modes of transmission, as well as morphology and phylogenetic relationships.
1 class hour; 2 2-hour laboratory periods. Credit. 3.
10:00-10:50 W.; 10:00-11:50 M. F.; or (for 69 only) 3:00-4:50 Tu. Th.
Assistant Professor TRAVER.
Prerequisite, Zoology 1.

75. (I) 76. (II) VERTEBRATE EMBRYOLOGY.—The study of vertebrate embryology generally assumes a knowledge of comparative vertebrate anatomy. A thorough study is made of the development of representative animals, special emphasis being placed on the amphibian, bird, and mammal. General embryological principles are stressed throughout, and appropriate introductions are given to the hormones of reproduction and to experimental embryology. The work is arranged to run through the year and is required of students specializing in zoology and especially recommended for premedical students.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 Th.; 1:00-2:50 M. F. Professor WOODSIDE.
Prerequisite, Zoology 1.

80. (II) ORNITHOLOGY (1948-49).—Alternates with Course 82. Lectures consider the history of ornithology, classification, evolution, anatomy, physiology, nesting habits, flight, migration, distribution, and abundance of the birds of the world. Laboratory work consists of three parts: a study of the characteristics for field identification of the birds of New England; a study of the anatomy of a typical bird, the pigeon. The course

is required of students in wildlife management and recreational leadership, anatomy will be helpful. Course limited to twenty students.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
8:00-8:50 Th.; 3:00-4:50 M. F. Assistant Professor Bartlett.
Prerequisites, Zoology 1, 25.

82. (II) Vertebrate Zoology (1947-48).—Alternates with Course 80. Lectures consider the classification, ecology, life history, distribution, abundance, and evolution of each of the classes of vertebrates of the world, with emphasis on North American forms. Laboratory work will deal primarily with the anatomy and classification of representatives of each of the classes. The course is required of students in wildlife management, and recommended for majors in zoology and recreational leadership. A knowledge of comparative anatomy will be helpful. Course limited to twenty students.
knowledge of comparative anatomy will be helpful.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
11:00-11:50 W.; 3:00-4:50 Tu. Th. Assistant Professor Bartlett.
Prerequisites, Zoology 1, 25.

85. (I) Classes of Arthropods Other Than Insects.—Arthropods are studied from the phylogenetic standpoint, with special reference to their relationship to the origin and evolution of insects.

1 class hour; 2 2-hour laboratory periods. Credit, 3.
10:00-10:50 Tu.; 1:00-2:50 Tu.; 2:00-3:50 Th.
Assistant Professor Hanson.

86. (II) Fisheries Management.—This course is designed to meet the needs of students interested in fish conservation and fishery methods. Material will include a general survey of the economically important groups, their ecology and life histories. Specific aspects such as fish diseases and parasites, culture methods, biological surveys, and pollution problems as affecting fish life will be stressed.

2 class hours; 1 2-hour laboratory period. Credit. 3.
9:00-9:50 W. S.; 10:00-11:50 S. For last five weeks, 8:00-8:50 additional.
Prerequisite, Zoology 25, or Zoology 1 and permission of instructor.
Mr. Andrews.

91. (I) 92. (II) Special Problems in Zoology.—Qualified graduate students and seniors who have met departmental requirements for specialization in the field of zoology may arrange for work on a special problem in zoology.

Credit, 3.
The Department.

BIOLOGICAL FIELD STUDIES

Professor Vinal

51. (I) 52. (II) Biological Field Studies (1947-48). Course 51 is devoted to field studies with fall flowers, trees in winter, wood specimens, evergreens and the making of terraria. Course 52 deals with topog-

raphy, glaciers, minerals, birds, and spring flowers with special emphasis on methods, skills and techniques of leadership in nature education. These courses are required of students specializing in recreational leadership. Enrollment limited to twenty-five. Given in alternate years.

1 class hour; 2 2-hour field periods. Credit, 3.

Professor VINAL.

61. (I) 62. (II) PUBLIC RELATIONS IN NATURE RECREATION.—For juniors and seniors specializing in recreational leadership; others may elect by special arrangement with the instructor. A course in public contacts designed to bring to the attention of the student the natural history background with which one must be familiar if he is to succeed in public work. Community facilities, population, land use, climate, housing, good rural life in relation to community planning and nature recreation, are some of the factors to be considered. Each student will be expected to make a survey of his home town.

3 class hours. Credit, 3.

Professor VINAL.

71. (I) 72. (II) ADVANCED BIOLOGICAL FIELD STUDIES (1948-49).—This course is devoted to field studies with cultivated plants, bog plants, the seabeach, salt water and fresh water aquaria, terraria, shell fish, amateur weather bureau, conservation, camping education, the observation bee hive, gardening, school and community forests, animals in winter. Community service is expected. Enrollment limited to twenty-five. Given in alternate years.

1 class hour; 2 2-hour field periods. Credit, 3.

Professor VINAL.

73. (I) 74. (II) SPECIAL PROBLEMS IN NATURAL SCIENCE.—For juniors and seniors specializing in recreational leadership. It is expected that the problem will relate to the immediate career which the student has in view.

3 class hours. Credit, 3.

Hours by arrangement. Professor VINAL.

DEGREES CONFERRED 1947

June 9, 1947

RECIPIENTS OF HONORARY DEGREES

Frank Scripture Clark, Hopedale, Massachusetts—*Bachelor of Science extra ordinem*
Francis Alonzo Bartlett, Stamford, Connecticut—*Doctor of Agriculture*
Sidney Burritt Haskell, Larchmont, New York—*Doctor of Science*
Mrs. Minnie Ryan Dwight, Holyoke, Massachusetts—*Doctor of Humane Letters*
Hugh Potter Baker, Amherst, Massachusetts—*Doctor of Laws*

DOCTOR OF PHILOSOPHY (Ph.D.)

Antonio Lopez Matas	Santiago, Chile
Reuben Abraham Munday	Tuskegee Institute, Ala.

MASTER OF SCIENCE (M.S.)

Arthur Chester Avery	Amherst
Irving DuMond Baker	Springfield
Richard Russell Barton	Springfield
Marjorie Helen Brownell	Mattapoisett
Elton Loydon Clark	Manchester, Conn.
John Lewis Creech	Worcester
John Paul Crimmins	Worcester
Paul Doigan	Hartford, Conn.
Katherine Mary Dwyer	North Hadley
Arthur James Gleason Foley	Dorchester
Lippman Geronimus	Brooklyn, N. Y.
William James Hart, Jr.	Holyoke
Wilfred Bostock Hathaway	Segreganset
Melvin Cliston Jack	Quincy
Robert Leon Lebrec	Paris, France
Genevieve Katherine Lekarczyk	Holyoke
Charles Donald MacCormack, Jr.	West Medford
William Patrick Murtagh	Great Barrington
Clifford Norton Oliver	Amherst
Michael William Paparella	Plainville
Leonard Raymond Parkinson	Amherst
Christopher Kostas Rallis	Chicopee Falls
Judith Esther Rosenthal	Brooklyn, N. Y.
Alfred Howard Rudge	Millbury
Donald Bernard Seeley	Stratford, Conn.
Dorothy Cole Staples	Framingham
Albert Richard Studer	Reading

‡ As of Class of 1946

Daniel William Talmadge	Cheshire, Conn.
Henry Smith Thornton	Amherst
Gladys Lee Westcott	Amherst
Elizabeth Keith Wheeler	Ames, Iowa
John Langille Wood	Greenfield

BACHELOR OF SCIENCE (B.S.)

Barton Bruce Allen	Pelham
Alexander Denton Amell	North Adams
David Werner Anderson, Jr.	Worcester
Edward James Anderson	Greenbush
Phyllis Barbara Andrews	Worcester
Pearl Pauline Appel	Lynn
Jeanne Russell Archer	Braintree
Milton Ralph Bass	Pittsfield
Verne Madeline Bass	North Adams
Carol Bateman	Worcester
Thomas Edward Batey, Jr.	Weston
George Napoleon Beauregard	South Hadley Falls
Edythe Ruth Becker	Springfield
Marjorie Claire Bedard	West Springfield
Cedric Harding Beebe	Newton
Barbara Ann Beitzel	Mechanicsburg, Penn.
Robert Leonard Bernstein	Dorchester
Dorothy Morton Billings	Hadley
Maurice Blauer	Belmont
James Anderson Block	Hadlyme, Conn.
Warren Julius Bodendorf	Westfield
Marcelle Amanda Bonvouloir	North Adams
Richard Alfred Booth	Holyoke
Joseph Bornstein	Milton
Rachel Jacqueline Bouchard	Fall River
George Hartt Bower, Jr.	Boston
Agnes Viola Bowles	Beverly
William Henry Boyd	Brockton
Henry Lymon Bralit	Carlisle
Barbara Elayne Brown	Mattapan
Frederick Vincent Brutcher, Jr.	Mansfield
Bernadette Frances Buckley	Lawrence
Delight Ellen Bullock	Pittsfield
David Graves Bush	Westfield
Mary Alice Cande	Dalton
Evelyn Frances Carlson	Brockton
Sally Ann Charney	Mattapan
George Chornesky ‡	Lynn
Esther Mary Coffin	North Amherst
Philip Jay Cohen	Roxbury
Carroll Vernon Cole	Amherst
Eveleth Irving Cooper	Wayland
Iris May Cooper	East Walpole
Robert Harlan Cowing	West Springfield
Jean Frances Crone	Upton
Benjamin Charles Crooker, Jr.	Shelburne Falls
Patricia Noel Cudworth	Sturbridge
Jean Isabel Cummings	West Roxbury
Richard Alan Damon, Jr.	Lowell
Nancy Davies	New Haven, Conn.
Robert Bassett Dennis	Springfield
Mayo Alden Derby	Leominster

‡ As of Class of 1946

Norman Wilfred Desrosier	Athol
Robert Orth Dewey	Westfield
Gloria Jane DeWitt	Granby
Warren Spencer Dobson	Norwood
Barbara Howard Domby	Pittsfield
Henry Eugene Drozdal	Hadley
Frank Algar Duston	Springfield
Paul Ellen	Roxbury
Howard Lee Estes	Milton
Robert Carroll Everson	Amherst
James Edward Falvey	Chicopee
Robert Louis Fay	South Hadley
Edwin John Fedeli	Worcester
George Paul Foley	Worcester
Bernard Arthur Forest	Arlington
Allan James Fox	Dracut
Richard John Frost	Wellesley Hills
Charles Glennie Fyfe	Worcester
Elizabeth Ann Gagne	Northampton
Gladys Geiger	Shelburne Falls
John Dino Giannotti	Fall River
Lester Alsbra Giles, Jr.	West Springfield
Walter Anthony Glista	Bridgewater
Theodore Henry Godek	Chicopee
Virginia Ann Colart	Gloucester
Theodore Joseph Golonka	Turners Falls
Albert Edward Goring, Jr.	Northampton
Samuel Kimball Gove	Walpole
Irwin S. Green	Brookline
Herbert H. Gross	Sharon
Lydia Elizabeth Gross	Northampton
Howard Edgar Grout	Springfield
James George Halkiotis	Haverhill
Natalie Evelyn Hambly	West Bridgewater
Cecelia May Hansen	Granville
Olga Marion Harcovitz	Millis
Marjorie Ruth Hattin	North Scituate
Kirby Maxwell Hayes	Buzzards Bay
Annette Helen Heyman	Springfield
John Willliam Hicks, III ‡	New Rochelle, N. Y.
John Duncan Hilchey	Raymond, N. H.
Janet Valentine Hines	Attleboro
Annis Hudson Hittinger	Belmont
Steven Lloyd Hollis, Jr.	South Hadley Falls
Dorothy Margaret Holly	Pittsfield
Robert Charles Holmes	Housatonic
John Thomas Hughes	Oak Bluffs
Philip Louis Iampietro	Middleboro
Eleanor Monroe Jackson	Amherst
Doris Pearson Jacobs	Sterling Junction
Muriel Frederica Jefferson	Springfield
Warren Irving Johansson	Leominster
Thomas Joseph Kane	Worcester
Emily Dorothy Kapinos	Ludlow
Arthur Karas	Mattapan
Robert Joseph Karp	Springfield
Mary Irene Kendrick	Charlemont

‡ As of Class of 1946

Richard Hardwick Kimball	Amherst
James Herbert King, Jr.	Worcester
Robert Ernest Klein	Frederick, Md.
Joseph Thomas Kokoski	Hadley
Mitchell Fred Kosciusko	Auburn
Edward Amedee LaFreniere *	Chicopee Falls
Lawrence Walter Lamery	Greenfield
Marcus Oliver Landon	Great Barrington
Deane Lee	Rowe
Mabel Jean Lee	Greenfield
Rose Marie Anna Leonowicz	South Deerfield
Morton Ashur Levine	Watertown
Bertram Libon	Roxbury
Nancy Beecher Love	Littleton
Robert George Love	Littleton
Janet Kehl Lundy	Northfield
Richard Dorr Lundy	Springfield
Anthony Joseph Luzzio	North Andover
Jean Dorothy Manning	Merrimac
Phyllis Anne Mannis	Southbridge
Pauline Gloria Marcus	Brookline
Fayette Clapp Mascho	Westhampton
Lurline Maugeri	Wakefield
Ralph Emerson McCormack	East Boston
John Paul McDonough	Dorchester
Elinor Louise Meiers	West Springfield
Judith Carol Miller	Allston
George Harold Millman	Mattapan
Virginia Catherine Minahan	Lawrence
Donald Milton Moore	Arlington
Leo Albert Moreau	Taunton
Roy Edgar Moser, Jr.	Amherst
James Malcolm Moulton	Longmeadow
Glen Orville Mulvey	Springfield
Horatio Williams Murdy	North Dartmouth
Joseph Nickoski #	Deerfield
Maxwell John Niedjela	Hadley
Avis Harriet Ofstrock	Woods Hole
Mary Theresa O'Reilly	Brockton
John Costas Papageorge	Northampton
Helene Anna Parker	Lawrence
Margaret Parsons	Marblehead
Lillian Elizabeth Pepka	Webster
William Peter Perednia	Norwood
Marion Polly Piper	Framingham
Robert Edward Place	Oxford
Edwin Michael Podolak	Hadley
Irwin Promisel	Chelsea
Marjorie Pushee	Rockland
Edwin Frank Rachleff	Springfield
Robert Franklin Radway	New London, Conn.
Robert Weston Rhodes	Whitman
Charles Bradford Richards	Arlington
Janice Patricia Riley	Haverhill
James Manix Ring	North Wilmington
Donald Hammond Rist	Amherst
Henry Fiske Ritter	Hardwick
Doris Louise Rogers	Amherst
Lois Charlotte Rosene	Shrewsbury

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* As of Class of 1941

Frederic Albert Rothery	Springfield
Louis Frederic Ruder, Jr.	Northampton
Robert Irving Ryan	Amherst
Arnold Clarke Salinger	Monson
Jack Schwartz	Fitchburg
Stanley Ralph Sherman	Hull
Constance Helen Shukis	Medway
Leo Martin Silber	Springfield
Geraldine Granger Smith	Florence
Gordon Paul Smith	Amherst
Robert Austin Smith	Hadley
John LeBaron Spencer	Amherst
Taylor Armstrong Steeves	East Weymouth
Maynard Albert Steinberg ‡	Brookline
Constance Elizabeth Stephens	Cambridge
John Alfonse Storella	East Boston
Veda Marion Strazdas	North Amherst
Paul Edward Swasey	Worcester
Jean Mae Swenson	East Longmeadow
Richard Jackson Symonds	Amherst
Constance Thatcher	Athol
Sophia Thomas	Southbridge
Sidney Topol	Dorchester
Gordon Prescott Trowbridge, Jr.	Northampton
William Joseph Tucker	Pittsfield
Wallace Wilder Turner ‡	Dalton
Norman Alfred Vanasse	Northampton
Rocco Anthony Verrilli	Harrison, N. Y.
Donald Burgin Walker ‡	Pelham
Charles Newton Warner	Sunderland
Elmer Roger Warner	Sunderland
Frances Virginia White	Upper Darby, Penn.
Barbara Ruth Whitney	Westfield
Bernard Maurice Willemain	Holyoke
Jacqueline Diana Winer	Springfield
Phoebe Ann Wood	Amherst
Elmer George Worthley, Jr.	Boston
Algirdas Peter Yurkstas	Bridgewater
Ralph Collier Zalkan	Peabody

BACHELOR OF ARTS (B.A.)

Doris Lou Anderson	Amherst
Salome Marie Authier	Chicopee
Anne Margaret Baker	Hanson
Elaine Baker	Lynn
Herman Saul Barenboim	Lawrence
Leon Oser Barron ‡	Roxbury
Helen Louise Barrows	Stafford Springs, Conn.
Richard Wingate Bauer ‡.	South Weymouth
Gloria Jean Bissonnette	Indian Orchard
Sidney Nelson Black	Brighton
Gloria Louise Bonazzoli	South Sudbury
Russell Henry Bosworth	Middleboro
Beatrice Boyar	Everett
Hazel Marie Burick	Englewood, N. J.
Robert William Burke	Woronoco
Helen Elizabeth Burroughs	West Acton

‡ As of Class of 1946

Charles Alexander Campbell, Jr.	Springfield
Doris Chaves	Swampscott
Stella Frances Ciszek	Chicopee
William Eric Clark	Lawrence
June Colburn	Williamsburg
Barbara Cole	Amherst
Josphine Rita Colorusso	Boston
Joan Shirley Deyette	Northampton
Michael Joseph Donohue	Holyoke
Maureen Anne Enright	Springfield
Allen Irwin Feldman ‡	Brookline
Shirley Louise Fine	Springfield
John Morgan Fitzgerald	Springfield
Cynthia Anne Foster	Framingham Center
Patricia Gail Fowler	Sunderland
Estelle Iola Freeman	Brookline
Ray Russell Fuller	Springfield
Dorothy Barbara Gardner	Southbridge
Ethel Roslyn Glick	North Adams
George Arthur Goddu	Holyoke
Shirley Hope Goldstein	Pittsfield
Shirley Thelma Green	Chelsea
Gloria Marie Harrington	Whitman
Arthur Stanley Irzyk	Salem
George Robert Kaplan	Brighton
Irene Mary Kavanaugh	Amherst
Nancy Jeanne Kelleher	Beverly
Natalie Kettleman	Revere
Raymond Harold Kneeland	Northampton
Lila Grace Lawless	Shelburne Falls
Harold Leen	New Bedford
Mary-Elizabeth Magrane	Holyoke
Julian Malkiel	Brookline
Raymond Edward Malloy	Northampton
Doris Constance Martin	Springfield
Joseph Annibal Masi	Franklin
Thomas Patrick Moore	Holyoke
Lewis Bradford Morton, Jr.	Plymouth
Alice Regina Motyka	Three Rivers
Andrew Waldemar Nelson	Quincy
Theodore Anthony Noke	Brighton
Alice Pauline Oleaga	Springfield
Robert John O'Shea	Northampton
Stanley Pacocha	Easthampton
Cecile Elinor Palmer	Springfield
Jeanette Evelyn Parker	West Bridgewater
Dario Politella	Lawrence
John Kingsley Pollard, Jr.	Northampton
Anne Louise Powers	Braintree
Fred John Pula	South Hadley
Edward Joseph Rabaioli	Medway
Irving Robbins	Mattapan
Barbara Alice Scannell	Springfield

‡ As of Class of 1946

Hilda Blanche Sheinberg	Chelsea
Lorian Alberta Smith	Boston
Rosemary L. Speer.	Hampden
Mary Winifred Stebbins	Deerfield
Frederick Rogers Tibbetts	Winchendon
Louis Clark Toppan ‡	Amherst
Edward Arthur Watts ‡	East Weymouth
Justin Irving Winthrop	Lynn
Margaret Jean Woodward	Northboro
Lucy May Woytonik	Easthampton
Adrienne Charlotte Zacks	Brookline

BACHELOR OF VOCATIONAL AGRICULTURE (B.V.A.)

Orman Hemenway Glazier	Leverett
Patrick Gildo Santin	Beverly

BACHELOR OF LANSCAPE ARCHITECTURE (B.L.A.)

Yoshiro Befu	Amherst
Mark Harold Gordon	Wilbraham
Marcia Audrey Greenspan	Holyoke
William Francis McIntosh	Amherst
Harold Elwood Mosher	Sterling
Donald Howard Parker	West Roxbury
Edward Buck Willard	Wollaston

‡ As of Class of 1946

STUDENT REGISTRATION

1947-48

CLASS OF 1948

Anderson, Warren E.	Worcester	Mt. Pleasant Inn
Archibald, Frances S.	Newton Highlands	Thatcher Hall
Army, Thomas J.	Worcester	Alpha Gamma Rho
Ash, Romaine	South Swansea	Lewis Hall
Avery, Mary E.	Colrain	North College
Bailey, Charles W., Jr.	New Bedford	394 North Pleasant St.
Baines, Pauline	New Bedford	Thatcher Hall
Baker, Marilyn M.	Southbridge	Chi Omega
Baldwin, Priscilla W.	Harwichport	Kappa Kappa Gamma
Balise, Raymond H.	Northampton	77 Prospect St., Northampton
Bates, Harriet O.	Carlisle	Kappa Kappa Gamma
Bayles, Jean	South Dennis	Kappa Kappa Gamma
Bazol, Judith R.	Brookline	Abigail Adams House
Bennett, Bernard	Springfield	Tau Epsilon Phi
Berdahowski, Stanley F.	Westfield	Theta Chi
Bernstein, Paul W.	Springfield	25 Nutting Ave.
Better, Shirley E.	Peabody	Sigma Delta Tau
Beyer, Arthur H.	Springfield	Commutes
Biletsky, Miriam	Mattapan	Sigma Delta Tau
Bilsky, Erwin S.	Longmeadow	24 Nutting Ave.
Blakeslee, Lucille F.	Brattleboro, Vt.	Abigail Adams House
Bliss, Thomas K., Jr.	Attleboro	Federal Circle, Apt. J-4
Bloniarz, Josephine G.	Adams	North College
Boski, Virginia K.	Northampton	Abigail Adams House
Bourdeau, Edward J.	Turners Falls	Commutes
Brenner, Carl G.	Peakskill, N. Y.	Kappa Sigma
Brisset, R. Louise	Holyoke	Chi Omega
Broderick, Donald C.	Lynn	Draper Hall
Brouillet, Barbara	Holyoke	Abigail Adams House
Brown, John L.	Amherst	Federal Circle, Apt. D-5
Brunell, Eunice J.	Worcester	Abigail Adams House
Brunner, Phyllis E.	Cranbury, N. J.	Kappa Kappa Gamma
Buczoki, Lillian D.	Ludlow	Abigail Adams House
Burgess, Daniel F.	Brockton	Greenough Hall
Burres, David	Springfield	Chadbourne Hall
Butler George D., Jr.	Leonia, N. J.	Alpha Gamma Rho
Butler, Robert K.	Worcester	Lambda Chi Alpha
Cadorette, John W.	Plymouth	Federal Circle A-6
Cady, Glenna	Westfield	North College
Caird, Martha J.	Braintree	North College
Campbell, Arthur M.	E. Boston	Commonwealth Circle
Campbell, Raymond W. J.	Dorchester	Federal Circle, Apt. J-1
Card, Ramona	Holbrook	North College
Carey, Janet E.	Williamstown	Abigail Adams House
Carey, Shirley J.	Holyoke	Kappa Kappa Gamma
Chapin, Martha M.	Amherst	Commutes
Chase, George A.	Foxboro	Theta Chi
Chase, Maribeth	Holliston	Kappa Alpha Theta
Chatel, Annella C.	Amherst	Federal Circle, Apt. J-3

Clancy, Patricia A.	Springfield	Kappa Kappa Gamma
Clorite, Robert H.	Fall River	Box 426
Cohen, George	Dorchester	12 Colony Court
Cole, Philip H.	Westfield	Alpha Gamma Rho
Commo, Claire M.	Auburn	Chi Omega
Cook, Ruth L.	Springfield	Kappa Alpha Theta
Cooley, Barbara J.	E. Longmeadow	Kappa Kappa Gamma
Cooper, Barbara	West Yarmouth	778 North Pleasant St.
Cotton, Priscilla H.	Haverhill	Pi Beta Phi
Courchene, William L.	Springfield	Kappa Sigma
Couture, Jacqueline L.	Becket	Abigail Adams House
Crosby, John F.	Greenfield	Greenough Hall
Crotty, Ann M.	Worcester	Chi Omega
Culbertson, Thomas A.	Philadelphia, Pa.	Theta Chi
Curtis, Roberta L.	Rutland	Kappa Alpha Theta
Cushman, Phyllis A.	Cambridge	Thatcher Hall
Cynarski, Jeannette	Adams	Pi Beta Phi
Czarnecki, Stephen W.	Easthampton	Federal Circle, Apt. J-2

Darling, Leroy E.	Amherst	396 North Pleasant St.
Davenport, John R.	Shelburne Falls	Kappa Sigma
Day, Marion G.	Northboro	Chi Omega
Day, Robert W.	Amherst	Federal Circle, Apt. H-2
Deltour, Robert J.	Monson	Kappa Sigma
Derosier, Gerald A.	Amherst	Federal Circle, Apt. N-6
deVos, Francis	Amherst	Federal Circle, Apt. H-4
DeYoung, Raymond C.	Boston	Federal Circle, Apt. K-3
Dinn, Walter E.	Holyoke	Moore's Cor., No. Leverett
Doten, George W.	Plymouth	Kappa Sigma
Downing, Evelyn	Springfield	North College
Duffy, Jane K.	Springfield	Abigail Adams House
Duquette, Alfred L.	New Bedford	414 North Pleasant St.
Duys, Gerrit, Jr.	West Tisbury	Chadbourne Hall
Dwyer, John L.	Pittsfield	12 Colony Court

Easland, Laura	Rocky Hill, Conn.	Kappa Alpha Theta
Edwards, Edward C., Jr.	Amherst	813 North Pleasant St.
English, James F., Jr.	Brockton	Phi Sigma Kappa
Epstein, George	Mattapan	Tau Epsilon Phi
Epstein, Robert	Cambridge	23 East Pleasant St.
Evans, Jane P.	Sunderland	Commutes

Falby, Chester E.	West Berlin	461 North Pleasant St.
Farinha, Edmund	Fall River	394 North Pleasant St.
Farquharson, Priscilla	Thatcher Hall	Thatcher Hall
Feffer, Melvin H.	Springfield	G. I. Village, Amherst College
Fein, Robert E.	Springfield	Tau Epsilon Phi
Felton, C. Jean	Lenox	Kappa Kappa Gamma
Flint, Martha M.	East Mansfield	Abigail Adams House
Foerster, Elva M.	Springfield	Chi Omega
Fowler, Donald H.	No. Amherst	Commutes

French, Mary A.	North Amherst	Commutes
Frenette, Estelle M.	Holyoke	Abigail Adams House
Friedman, Mischa E.	Worcester	Alpha Epsilon Pi
Fuller, Jean K.	Wellesley Hills	Kappa Kappa Gamma
Fulton, James W.	Amherst	Commutes

Galusha, Elinor G.	Granby	Abigail Adams House
Garbutt, John R.	Worcester	Sigma Alpha Epsilon
Gaylord, William H.	South Hadley	282 Triangle St.
Geller, Jerome	Pittsfield	418 North Pleasant St.
Gerber, Betty	Springfield	Sigma Delta Tau

Gilman, Ralph G., Jr.	Greenfield	Phi Sigma Kappa
Gingras, Warren P.	Turners Falls	Phi Sigma Kappa
Glaser, Donald W.	Bronxville, N. Y.	Kappa Sigma
Glass, Samuel	Roxbury	Alpha Epsilon Pi
Glendon, Robert E.	Winchester	Sigma Alpha Epsilon
Gobbi, Frances A.	Springfield	Abigail Adams House
Goldblatt, Irving	Springfield	418 North Pleasant St.
Goldin, George J.	Lynn	Tau Epsilon Phi
Goldman, Melvin N.	Lawrence	G. I. Village, Amherst College
Golub, Arnold J.	Dorchester	Tau Epsilon Phi
Good, William J., Jr.	Randolph	Sigma Alpha Epsilon
Goodall, Betty A.	Cotuit	Pi Beta Phi
Goodrich, Phyllis E.	Pittsfield	Pi Beta Phi
Gordon, Robert D.	Brookline	Tau Epsilon Phi
Gottesman, Herman B.	New York, N. Y.	417 North Pleasant St.
Gotz, Eleanor	Chelsea	Sigma Delta Tau
Grayson, Margaret A.	Norwalk, Conn.	Abigail Adams House
Greenberg, Bernard	Springfield	25 Nutting Ave.
Greenberg, Harold	Dorchester	178 North Pleasant St.
Greenbush, Isabel F.	Pittsfield	Abigail Adams House
Guertin, Lorraine M.	Southbridge	Kappa Kappa Gamma
Guyott, Frederick F. Jr.	Amherst	Federal Circle, Apt. G-1

Hahn, Peter, J.	Hewlett, N. Y.	Chadbourne Hall
Hall, Edward D.	Amherst	Federal Circle, Apt. E-2
Halvorsen, Roger E.	Palmer	24 McClellan St.
Hamlin, Marjorie H.	Amherst	Abigail Adams House
Handlin, Elaine M.	Chelsea	409 North Pleasant St.
Hawkes, Shirley M.	Georgetown	Abigail Adams House
Healey, Florence D.	West Springfield	Chi Omega
Heffron, Anne M.	Holyoke	Kappa Kappa Gamma
Henken, Ernest M.	Everett	25 Nutting Ave.
Herrmann, Ruth L.	Easthampton	Abigail Adams House
Hibbard, Emerson W.	North Hadley	30 North Hadley Rd.
Hill, Mary T.	Springfield	North College
Hinsley, Eleanor J.	Worcester	Kappa Kappa Gamma
Honkonen, Maija A.	Fitchburg	Kappa Alpha Theta
Hosmer, William A.	Westfield	Theta Chi
Howes, William A.	Dalton	Lambda Chi Alpha
Hyndman, Barbara D.	Springfield	Kappa Alpha Theta

Jackowski, Alphonse J.	Holyoke	Commutes
Jackson, David F., Jr.	Mansfield	Phi Sigma Kappa
Jackson, Henry H., Jr.	Attleboro	Federal Circle, Apt. L-6
Jacobs, Donald S.	Dorchester	Alpha Epsilon Pi
Jaffe, Edith J.	Dorchester	Sigma Delta Tau
Jakeman, Brooks R.	Harrison, N. Y.	374 North Pleasant St.
Jameson, Helen A.	Monson	Abigail Adams House
Jones, Frederick L.	Hopedale	Sigma Alpha Epsilon
Jones, Lillian R.	Ashland	North College
Jones, Nelson V.	Springfield	Sigma Alpha Epsilon
Jones, Robert W.	Amherst	P. O. Box 425
Joyce, Richard P.	Florence	Alpha Gamma Rho
Julian, Virginia L.	Amherst	Commutes

Kagan, Thelma	Brookline	Abigail Adams House
Kaplan, Elliot J.	Brookline	Alpha Epsilon Pi
Kaplan, Max M.	Springfield	Federal Circle, Apt. M-2
Kaufman, Jewel B.	Worcester	Sigma Delta Tau
Keefe, James H.	Palmer	Alpha Gamma Rho
Kelley, Ida M.	Framingham	Abigail Adams House
Kelly John W.	Northampton	Commutes
Kennedy, Doris M.	Holyoke	Chi Omega

Kenyon, Forrest L.	Richmond, Vt.	Kappa Sigma
Keough, Anne M.	Holyoke	Chi Omega
Keough, John E.	Holyoke	Commutes
King, Robert H.	Ashfield	Commutes
Klein, Edith D.	Winchester	695 Main Street
Klein, Max	New Bedford	Tau Epsilon Phi
Kobak, Elizabeth L.	Fairhaven	Thatcher Hall
Kolovson, Maurice G.	Chestnut Hill	Greenough Hall
Krikorian, Lillian	Methuen	Abigail Adams House
Kronheim, Ursula R.	Longmeadow	Sigma Delta Tau
Kronick, David	North Adams	Tau Epsilon Phi

Laipson, Myron R.	Worcester	46 Main St.
Laliberte, James J.	Holyoke	Phi Sigma Kappa
Lambert, John E.	Amherst	Commutes
Lane, Paul A.	Mansfield	Q. T. V.
Lapides, Miriam	Greenfield	Sigma Delta Tau
LaRochelle, John H.	Chicopee Falls	Kappa Sigma
LaSalle, Lois M.	North Hadley	Commutes
Lasker, Matthias	Roxbury	Commonwealth Circle
Lauder, Donald S.	Amherst	Commutes
Lawrence, John R.	Falmouth	449 North Pleasant St.
Leonard, Adeline L.	Dorchester	Abigail Adams House
Levine, Jerome S.	Springfield	178 No. Pleasant St.
Levine Richard	Mattapan	417 North Pleasant St.
Litz, William E., Jr.	Monson	Federal Circle, Apt. J-7
Lucey, William E.	Springfield	Phi Sigma Kappa
Ludeman, John A.	Amherst	5 Churchill St.
Lynch, Robert E.	Winthrop	Theta Chi

Magiopoulos, Catherine	Springfield	North College
Mangum, Constance M.	Holyoke	Kappa Alpha Theta
Mann, Anita E.	Norfolk	Lewis Hall
Marien, Jacqueline G.	Springfield	Kappa Kappa Gamma
Markuson, M. John, Jr.	Amherst	Commutes
Marten, Rose-Marie A.	Willimansett	North College
Martin, John J.	Adams	Pokeberry Ridge
Martinson, Elmer C.	Holyoke	Commutes
Mastalerz, John W.	Three Rivers	Theta Chi
Maturniak, George	Amherst	Commutes
McCarthy, Daniel J.	North Andover	Phi Sigma Kappa
McCutcheon, Roger D.	South Deerfield	Theta Chi
McKinstry, Mary W.	Chicopee Falls	Thatcher Hall
McNally, Alice F.	Holyoke	Chi Omega
Melahouris, Theodora B.	Boston	Abigail Adams House
Merrill, William R.	Norwood	Phi Sigma Kappa
Mesnick, Evelyn	Gloucester	Abigail Adams House
Mientka, Walter E.	Amherst	414 No. Pleasant St.
Miller, Mary E.	Amesbury	Kappa Alpha Theta
Milliken, Horace N.	Dedham	Theta Chi
Moir, Lorane M.	North Adams	Pi Beta Phi
Moldaw, Raquel I.	Mattapan	Sigma Delta Tau
Mount, Robert	Longmeadow	Chadbourne Hall
Muri, Richard L.	Framingham	Lambda Chi Alpha
Murphy, Eugene	Longmeadow	Kappa Sigma
Murphy, Francis J.	Gardner	374 No. Pleasant St.

Nahlovsky, Barbara M.	Springfield	Abigail Adams House
Najarian, Haig	Millis	Alpha Gamma Rho
Needham, William H.	Westfield	Federal Circle, M-6
Northup, Alice C.	Williamstown	Abigail Adams House
Norton, Richard A.	Norwood	Federal Circle, J-6

Obelsky, Alvan J.	Dorchester	Greenough Hall
O'Neill, Mary E.	Northampton	Abigail Adams House
Orlandella, Teresa M.	Boston	Abigail Adams House
O'Shea, Daniel F.	Hyde Park	Kappa Sigma
Otero, Edward J.	New York, N. Y.	Federal Circle, M-8

Pease, Robert D.	Amherst	Theta Chi
Peck, Margaret E.	Shelburne	North College
Pemstein, Joan S.	Worcester	Thatcher Hall
Pierce, Robert L.	So. Hadley Falls	Greenough Hall
Pimentel, David	Middleboro	Alpha Gamma Rho
Porter, Elliott W.	Miami, Fla.	Federal Circle, J-5
Preble, Melvin S.	Maine	Federal Circle, B-6
Price, Samuel E.	Wantagh, N. Y.	Phi Sigma Kappa

Quirk, Mary	Springfield	North College

Ransom, Lois M.	Springfield	Abigail Adams House
Raphael, Ruth R.	Worcester	Sigma Delta Tau
Rheaume, Jeanne C.	Holyoke	Chi Omega
Richard, Pauline E.	Southbridge	North College
Ridley, Alden D.	Thompsonville, Conn.	27 So. Prospect St.
Riley, Mary-Teresa	New Bedford	Kappa Kappa Gamma
Robbins, Carroll F.	Amherst	Federal Circle, G-8
Roberson, Richard C.	Leominster	Lambda Chi Alpha
Roberts, Jean A.	Springfield	Kappa Kappa Gamma
Rockey, Charles F.	Easthampton	382 No. Pleasant St.
Romano Antonetta E.	Springfield	Pi Beta Phi
Romm, Avrom N.	Holyoke	Tau Epsilon Phi
Rose, John P.	Amherst	Federal Circle, C-5
Ross, Wayne H.	Brookline	27 Woodside Ave.
Ruggles, Almon O.	Brookfield	Theta Chi
Rumminger, Alfred P.	Leeds	135 Park St. Easthampton
Russell, Ruth L.	Easthampton	Kappa Alpha Theta
Ryan, William F.	West Barrington, R. I.	Chadbourne Hall

St. Palley, Theodore	Pittsfield	Lambda Chi Alpha
Salsman, Shirley	Ashland	Thatcher Hall
Savino, Leslie V.	Northampton	Federal Circle, C-7
Scalingi, Albert V.	Somerville	Kappa Sigma
Schulze, John	Yonkers, N. Y.	29 So. Pleasant St.
Secor, David S.	Wilbraham	Mt. Pleasant Inn
Sedgwick, Luella D.	Lenox	Abigail Adams House
Sellew, Helen T.	Natick	Abigail Adams House
Semon, Jean P.	Auburn	North College
Shannon, John W.	Milton	Theta Chi
Shapiro, Harvey S.	Chelsea	417 No. Pleasant St.
Shea, Ruth C.	Springfield	Kappa Kappa Gamma
Shepard, Herbert E.	Warren	Commutes
Shoenberg, Z. Janet	Clinton	Abigail Adams House
Shub, Esther	Springfield	Commutes
Siagel, Frances	Newton Center	Sigma Delta Tau
Simmons, Beryl	Amesbury	Pi Beta Phi
Simon, Edward H.	Lawrence	Alpha Epsilon Pi
Simon, Hope A.	Roxbury	Sigma Delta Tau
Simon, Sheldon S.	Roxbury	Alpha Epsilon Pi
Sizer, Ann L.	Holyoke	Chi Omega
Smith, Edward M.	Marblehead	Greenough Hall
Smith, Paul E., Jr.	Northampton	Chadbourne Hall
Smith, Rachel	Springfield	Abigail Adams House
Solomon, Sidney	Worcester	Alpha Epsilon Pi
Sparr, Bertram I.	Brookline	Federal Circle, M-7
Spiegel, Samuel	Dorchester	Draper Hall

Sprague, Edward D.	Lynn	Chadbourne Hall
Stead, Bernard L.	Lynn	Federal Circle, F-4
Stebbins, Charles D.	Deerfield	Commutes
Stegner, Barbara J.	Brimfield	North College
Steliga, Helen M.	Northampton	Commutes
Sternberg, Harriet E.	Greenfield	Abigail Adams House
Stetson, Lois E.	Heath	Abigail Adams House
Stevens, Calvin	Leverett	Commutes
Stevens, Robert A.	Amherst	Federal Circle, M-1
Stewart, Donald N.	Worcester	Chadbourne Hall
Stewart, M. Elaine	Winthrop	Kappa Kappa Gamma
Stowe, Howard D.	Colrain	Theta Chi
Symonds, Helen P.	Melrose	Abigail Adams House
Szetela, Edward R.	Holyoke	Phi Sigma Kappa
Tanguay, Pauline A.	Springfield	Kappa Kappa Gamma
Tarlow, Thelma R.	Gloucester	Abigail Adams House
Tauber, Walter F.	Springfield	Greenough Hall
Taylor, Gordon A.	Florence	Greenough Hall
Terry, Marjorie M.	Fairhaven	Chi Omega
Thaw, Ronald L.	Franklin	Alpha Epsilon Pi
Tolman, Betty L.	Springfield	Abigail Adams House
Trott, Melba C.	Ashland	Pi Beta Phi
Vanderpol, Adriana	Fairhaven	Abigail Adams House
VanMeter, Marcia	No. Amherst	Chi Omega
Waite, Joanna	Stoneham	Kappa Alpha Theta
Walker, John O.	Merrimac	Stockbridge Hall
Walker, Marcia R.	Southbridge	Abigail Adams House
Warden, Alan S.	Newark, N. J.	Theta Chi
Warner, Elizabeth A.	Shelburne Falls	Abigail Adams House
Waskiewicz, Stanley	Amherst	Commutes
Watson, John P.	Worcester	Q. T. V.
Weretelnyk, Joseph	Watertown	394 No. Pleasant St.
White, Arthur F.	Worcester	Kappa Sigma
White, Hazel I.	Winthrop	Kappa Alpha Theta
Williams, Richard A.	White Plains, N. Y.	Alpha Gamma Rho
Winstanley, Nathan B.	Allston	Draper Hall
Winston, Paul W.	Swanton, Vt.	Lambda Chi Alpha
Wolfe, Barbara	Jamaica Plain	Abigail Adams House
Wolkowich, Barbara	Worcester	Sigma Delta Tau
Wood, Coolidge W.	Northampton	Chadbourne Hall
Wroe, Robert L.	Foxboro	Federal Circle
Wysocki, Alice P.	Amherst	Commutes
Yarchin, Gertrude B.	Boston	Thatcher Hall
Zahn, Leonard S.	Dorchester	Commonwealth Circle
Ziman, Fred	Amherst	Federal Circle, A-2
Zuccaro, Rudolph R.	West Somerville	French Hall

CLASS OF 1949

Abrahams, Allan	Brookline	418 No. Pleasant St.
Abram, Lois	Holyoke	Sigma Delta Tau
Abramson, Doris	Amherst	Commutes
Alger, Mary Ann	Middleboro	Kappa Alpha Theta
Alkon, Alvin	Roxbury	Alpha Epsilon Pi
Allison, Martha	Wellesley	315 Lincoln Ave.
Altsher, Murray	Mattapan	Commonwealth Circle
Anderson, Cleo	Amherst	264 No. Pleasant
Arons, Marjorie	Winthrop	Thatcher
Aronson, Marshall	Newton Centre	Chadbourne

Babbitt, John	So. Westport	Kappa Sigma
Bailet, Albert	Roxbury	Alpha Epsilon Pi
Balise, David	Northampton	Draper Hall
Ballou, Henry	Holyoke	Phi Sigma Kappa
Barrett, Warren	Belchertown	Commutes
Barrows, Elmer	Worcester	Sigma Alpha Epsilon
Barrus, Donald	Springfield	Ferry's Folly, No. Amherst
Bass, Marion	North Adams	Chi Omega
Bean, Barbara	Florence	U. of M. Farmhouse
Beauregard, Wilfrid	Ware	Kappa Sigma
Beck, Martha	Springfield	Adams House
Beebe, Ruth	Haydenville	Commutes
Bemis, Ernest	W. Bridgewater	Draper Hall
Bertram, Robert	Salem	French Hall
Best, Richard	Amherst	Federal Circle D-4
Betterman, Jack	Dorchester	Greenough 101
Bevins, Robert	Salem	Chadbourne 405
Binder, Arnold	Mattapan	Commonwealth Circle
Blank, Theodore	Roxbury	401 No. Pleasant St.
Blomquist, Donald	Gardner	Chadbourne
Bluestein, Alan	Wakefield	Greenough 203
Blumenthal, Florence	Allston	Thatcher
Bock, Warren	Amherst	Federal Circle A-1
Boddy, Ronald	Claremont, N. H.	496 N. Pleasant
Bodurtha, James	Southhampton	61 Fearing St.
Boerner, Elizabeth	Ware	Adams House
Bolles, Sally	Woronoco	315 Lincoln St.
Bowen, Chester	Ipswich	S.A.E.
Bowman, Nancy	Springfield	Pi Beta Phi
Boyd, Lindsay	Holyoke	Federal Circle C-8
Bradbury, Harold	Amherst	Federal Circle C-2
Braman, Shirley	Southbridge	North College
Brennan, Donald	Dalton	Theta Chi
Bresnahan, Patrick	Holyoke	Phi Sigma Kappa
Bride, Helen	Springfield	Pi Beta Phi
Broderick, Barbara	North Adams	328 Lincoln Ave.
Bronson, Russell	Northampton	69 Old South St., N'ampton
Brown, Albert	Dorchester	Alpha Epsilon Pi
Brown, Arthur	Malden	401 N. Pleasant St.
Brown, Richard L.	Mattapan	Alpha Epsilon Pi
Brown, Richard M.	Swampscott	Poultry Plant
Brunner, Barbara	Cranbury, New Jersey	Adams House
Bulman, Cornelius	Jamaica Plain	Q.T.V.
Burgess, George	New Bedford	Federal Circle B-3
Burkhardt, Edgar	Newton	Theta Chi
Burley, Clarence	No. Brookfield	Commonwealth Circle
Burnett, Wayne	Amherst	Federal Circle H-3
Burtman, Arthur	Roxbury	T.E.P.
Bussel, Bernard	Holyoke	Commutes
Bussolari, Walter	Springfield	Theta Chi
Butler, Hervey	Amherst	Federal Circle H-6

Caldwell, Shirley	Melrose	Adams House
Campbell, Roland	Pelham	R.F.D. No. 2
Carroll, Aldea	Bridgewater	Adams House
Casper, Jerome	Dorchester	Alpha Epsilon Pi
Cassidy, James	Springfield	Greenough
Chadwick, Elizabeth	New Bedford	Thatcher
Chapman, Florence	Haverhill	Kappa Alpha Theta
Chatel, Robert	Amherst	Federal Circle J-3
Chiklakis, Harry	Springfield	Q.T.V.
Child, Barbara	Northampton	Adams House
Chizinsky, Walter	Springfield	Greenough 409
Church, Robert	Medford	Greenough 416
Clark, Shirley	Millis	Adams House

Clayton, Melvin	Dorchester	14 Allen St.
Cleary, Jean	Easthampton	Adams House
Clough, Louie	Greenfield	S.A.E.
Cohen, Joel	Northampton	Commutes
Cohen, Joseph	Holyoke	Tau Epsilon Phi
Cohen Roslyn	Mattapan	Sigma Delta Tau
Cohen, Saul	Springfield	417 N. Pleasant
Collier, David	Groton	Lambda Chi Alpha
Collingwood, Joseph	Holyoke	Q.T.V.
Colton, Henry	Longmeadow	Theta Chi
Conlon, John	Worcester	Theta Chi
Conlon, Therese	Lowell	Adams House
Cooley, Alan	Pittsfield	Commonwealth Circle
Cooper, Herbert	Boston	Tau Epsilon Phi
Copeland, Judith	Peabody	Thatcher
Coppleman, Samuel	Brighton	Tau Epsilon Phi
Cormier, Arlene	Leominster	Pi Beta Phi
Coughlin, Howard	Northampton	Greenough
Crean, John	W. Springfield	Phi Sigma Kappa
Crepeau, Claude	Greenfield	Commonwealth Circle
Crerie, Robert	Worcester	Theta Chi
Critchett, Edward	Amherst	Theta Chi
Crowley, Richard	Boston	401 No. Pleasant
Cuff, David	No. Weymouth	Q.T.V.
Culver, Homer	Easthampton	Commutes
Cynarski, Edward	Adams	411 No. Pleasant St.

Davenport, Jane	Lowell	Pi Beta Phi
Davis, David	East Taunton	Tau Epsilon Phi
Davis, Dorothy	N. Middleboro	34 Harlow Ave., N'ampton
Dayton, James	Amherst	Commutes
DeCarlo, Joseph	Springfield	Chadbourne 306
Decker, Lois	Dalton	328 Lincoln Ave.
DeWolf, Gordon	Chelmsford	414 No. Pleasant St.
Diamond, Robert	Easthampton	Kappa Sigma
Dickmeyer, John	Florence	Kappa Sigma
Dirks, Stephen	Montague	Chadbourne
Dobkin, Elaine	Mattapan	Thatcher
Doe, Peter	Winthrop	Chadbourne 217
Donovan, John	W. Springfield	Draper Hall
Dowling, William	Dorchester	Chadbourne
Drewniak, Edwin	Chicopee	Chadbourne 306
Drexel, Shirley	Easthampton	Thatcher

Dunn, John	Jamaica Plain	Chadbourne
Dunn, Shirley	Sarasota, Fla.	Kappa Alpha Theta
Dymerski, Leo	Haydenville	Federal Circle C-3

Edelstein, Hyman	Dorchester	389 No. Pleasant St.
Edmonds, Arreta	Pittsfield	Thatcher
Eissman, Gloria	Brighton	Thatcher
Elias, Jason	Lawrence	Greenough
Ellis, Richard	E. Brewster	Kappa Sigma
Elwell, Dorae	Longmeadow	Pi Beta Phi
Emmert, Fred	Holyoke	75 E. Pleasant St.
Erickson, Arnold	Gardner	Sigma Alpha Epsilon
Escholz, Theodore	Andover	Chadbourne 103

Fagan, Barbara	Lynn	Thatcher
Farley, Charles	Acton	Sigma Alpha Epsilon
Farquharson, John	Amherst	Thatcher
Feldman, William	Lawrence	Alpha Epsilon Pi
Fishman, Ralph	Dorchester	Tau Epsilon Phi
Flint, Mary	E. Mansfield	Adams House
Foglia, Virginia	Athol	Adams House

Foley, John	Amesbury	Lambda Chi Alpha
Ford, Nancy	Wellesley	Pi Beta Phi
Ford, Phyllis	Gardner	Thatcher
Fox, Thomas	So. Attleboro	Theta Chi
Frappier, Gerard	Holyoke	Q.T.V.
Frawley, Joanna	Turners Falls	Adams House
Friedman, Paula	Worcester	Thatcher
Fulton, Edward	Amherst	Alpha Gamma Rho
Gardner, Marcia	Nantucket Island	Adams House
Geer, Donald	Belchertown	Commutes
Geis, Gordon	Northampton	Chadbourne
Gilbert, Morton	Haverhill	Theta Chi
Gill, Gloria	Amherst	Commutes
Gillis, Louise	Watertown	Adams House
Gilman, Marshall	Malden	417 No. Pleasant St.
Girard, Marc	Springfield	Kappa Sigma
Glabau, William	New Britain, Conn.	395 No. Pleasant St.
Gleason, Robert	East Lebanon, Maine	24 Nutting Ave.
Gochberg, Dyanne	Winthrop	Sigma Delta Tau
Godin, Edmund	Longmeadow	414 No. Pleasant St.
Goldberg, Howard	Brookline	389 No. Pleasant St.
Goldberg, Hubert	Brookline	418 No. Pleasant St.
Gordon, Florence	Springfield	Adams House
Green, Robert	Woodstock, Vt.	Greenough
Greenburg, Paul	Fall River	Tau Epsilon Phi
Greene, Lillyan	Roxbury	Thatcher
Greenfield, Daniel	Chelsea	418 No. Pleasant St.
Groff, Charles	Ashfield	Draper Hall
Gruntler, Phyllis	Ware	Adams House
Gula, Alice	Easthampton	Adams House
Hager, John	Lexington	Kappa Sigma
Hall, Barbara	Shrewsbury	315 Lincoln Ave.
Hall, Richard	Newton Centre	Sigma Alpha Epsilon
Hall, Roderick Jr.	Auburn	Homestead Farms
Hamilton, Barbara	West Medway	North College
Handforth, John	West Medway	Kappa Sigma
Hansen, Richard	East Boston	Phi Sigma Kappa
Hauterman, Margaret	Holyoke	North College
Hayes, Elizabeth	Amherst	Pomeroy Lane
Hays, Elizabeth	Amherst	Commutes
Heffron, Frederick	Wrentham	Sigma Alpha Epsilon
Henry, John	Richmond	Greenough
Henry, Malcolm	Westboro	Chadbourne 406
Higgins, William R.	Springfield	164 Montague Rd., N. Amh.
Hight, Wendell P.	Arlington	Kappa Sigma
Hirshon, Pearl G.	Dorchester	Thatcher
Hoermann, Francis J.	Amherst	Apt. A-8 Fed. Cir.
Hogan, Janet E.	Springfield	Adams House
Holden, Herbert J.	Leominster	Phi Sigma Kappa
Holloway, John W. Jr.	Wethersfield, Conn.	Theta Chi
Holstein, Harris F.	Mattapan	203 Greenough
Holt, John A.	Easthampton	Commutes
Holt, Norman S.	Gardner	123 High St.
Howard, Catherine A.	N. Brookfield	Adams House
Howard, Frank L.	Amherst	Apt. F-3 Fed. Cir.
Hummel, Joan E.	Springfield	Thatcher
Izzo, Raymond J.	Somerville	Lambda Chi Alpha
Jackler, Joan M.	Holyoke	Sigma Delta Tau
Jackson, Richard	Walpole	496 N. Pleasant St.
Januszkiewicz, Stanley	Willimansett	Sigma Alpha Epsilon

Johnson, Elizabeth	Worcester	North College
Jost, Dana N.	Needham	Clark Hall
Kallaugher, Wallace J.	Dalton	Apt. F-7 Fed. Cir.
Kaufman, Abraham	Boston	R-9 Comm. Cir.
Kaye, Arthur E.	Springfield	301 Chadbourne
Kelly, Mary M.	Pittsfield	Thatcher
Kelly, Michael F.	Holyoke	Commutes
Kendall, Charles A.	W. Springfield	301 E. Pleasant St.
Kern, Herbert L.	Revere	418 N. Pleasant St.
Kerr, Stratton H.	E. Longmeadow	Phi Sigma Kappa
Kinmonth, Raymond A.	Belchertown	323 Greenough
Kinsman, Donald M.	Amherst	Commutes
Korson, Natalie D.	Chelsea	Adams House
Kramer, Diane R.	Roxbury	Adams House
Kunian, Charlotte	Lynn	Sigma Delta Tau
Lacey, Richard J.	Holyoke	Phi Sigma Kappa
LaFountain, Robert N.	Northampton	Commutes
Lambert, Judith T.	Worcester	Adams House
Landry, Jerome R.	Northampton	Lambda Chi Alpha
Lane, John E.	Worcester	S-5 Comm. Cir.
Lane, William N.	Florence	77 N. Prospect St.
Langerman, Lucille M.	Mattapan	Thatcher
Laurin, Cecile E.	Holyoke	Adams House
Lavigne, Claire L.	Chicopee	Lewis Hall
Lavin, Melvin	Springfield	25 Nutting Ave.
Leahey, Robert P.	Westfield	Kappa Sigma
Leal, Joseph R.	New Bedford	241 Northampton Rd.
LeBlanc, Cyrille J.	Gardner	Trailer Camp
LeBlanc, Francis H.	Gardner	107 Greenough
Lee, Barbara	Wellesley Hills	Adams House
Lee, Richard H.	Worcester	Kappa Sigma
LeGrand, Richard J.	S. Hadley Falls	308 Greenough
Levin, Arnold M.	Allston	387 N. Pleasant St.
Lewis, Donald A.	Milton	G-4 Fed. Cir.
Liberman, Deborah A.	Holyoke	Thatcher
Licciardello, Joseph J.	Lawrence	Chadbourne
Lieberman, Donald	Springfield	115 Chadbourne
Liley, William L. Jr.	Newport, R. I.	L-3 Fed. Cir.
Lisman, Alvan M.	Newton Centre	Chadbourne
Litz, N. Jean	Monson	328 Lincoln Ave.
Lovelace, Warren H.	Norwood	Q.T.V.
Lowell, Robert H.	Amherst	Commutes
Lynch, William H.	Lawrence	15 Sunset Ct.
Macina, Henry R.	Northampton	Greenough
Magri, Joseph L.	Holyoke	Commutes
Mahoney, John J. Jr.	Dorchester	Greenough 117
Maier, Nancy A.	Wellesley	Abbey
Marchioni, Gloria A.	Salisbury	Pi Beta Phi
Marcotte, George M.	New Bedford	179 Lincoln Ave., Amh.
Margolis, Adele R.	Roxbury	Thatcher
Margolis, Barbara S.	Brookline	Thatcher
Maron, Sylvia Z.	Peabody	Abbey
Marshall, James R.	Dalton	Phi Sigma Kappa
Marshall, Margaret M.	Dalton	North College
Masterson, Joseph H.	Pittsfield	Lambda Chi Alpha
Matthes, Marie	Methuen	Lewis
Matthews, John J.	Medford	Q.T.V.
McCarthy, Marilyn E.	New Bedford	Thatcher
McDonough, Regina M.	Watertown	Abbey
McGarr, Thomas J.	Lowell	Lambda Chi Alpha
McGrath, Edward J., Jr.	Easthampton	Lambda Chi Alpha

McKenney, Rueith A.	Swansea	Chi Omega
Mellen, William J.	Amherst	H-8 Fed. Circle, Amh.
Menard, Leon J.	Amherst	N-3 Fed. Circle, Amh.
Mendelson, David I.	New Bedford	Tau Epsilon Phi
Mentzer, Francis G., Jr.	Bolton	N. Pl. St., Box 72 N. Amh.
Micka, Anne	Easthampton	Stockbridge House
Miller, Carolyn E.	W. Springfield	Abbey
Miller, Janet E.	Springfield	Pi Beta Phi
Miller, Nancy	Brookfield	Thatcher
Mills, Homer O., Jr.	Wellesley	98 Spring St., Amh.
Miner, Harold A.	Springfield	Kappa Sigma
Monesi, Dorothy C.	Springfield	Abbey
Moore, Julia L.	Ashfield	Pi Beta Phi
Morgan, Victor M.	Newtonville	Comm. Circle T-17
Morrison, Marie T.	N. Brookfield	Thatcher
Moser, Marilyn L.	Amherst	Commutes
Moynihan, John T.	Holyoke	Greenough 205
Mozden, Peter J.	Three Rivers	Sigma Alpha Epsilon
Mpelkas, Christos C.	Lynn	24 Kellogg Ave., Amh.
Mullaly, John A.	Pittsfield	Lambda Chi Alpha
Murphy, Edward J.	Springfield	Chadbourne 215
Muzyka, Myron M.	Hadley	Commutes

Nadel, Marvin K.	Brookline	Chadbourne
Nason, Marjorie L.	Woburn	Abbey
Neville, Edward S.	Holyoke	Kappa Sigma
Newton, Donald G.	Northfield	Fed. Circle K-4
Nickas, Paul A.	Gloucester	382 N. Pl. St., Amh.
Nickerson, Norton H., Jr.	So. Dennis	East Exp. Station
Nicoll, Mary L.	Brighton	North College
Nichols, Charles E.	Ludlow	Comm. Circle S
Nisbeth, Val	Chappaqua, N. Y.	
Noyes, Robert F.	Amesbury	Phi Sigma Kappa

Ober, Richard M.	Brookline	Chadbourne 206
O'Brien, Mary T.	Pittsfield	Thatcher
Olaussen, Elizabeth A.	Rochester	Pi Beta Phi
Olinto, Crosby	Pittsfield	99 E. Pl. St., Amh.
O'Neil, Alice R.	Ludlow	Lewis
O'Neill, Raymond	Northampton	Lambda Chi Alpha
Openshaw, Howard	Amherst	A-4 Fed. Circle, Amh.
Osuch, Helen I.	New Bedford	21 Allen St., Amh.

Parker, Carol	Melrose	North College
Parker, Eleanor I.	Uxbridge	Thatcher
Parker, Virginia A.	Cummington	Abbey
Parsons, Kenneth J.	Northampton	Q.T.V.
Pelton, Faith	Lenox	328 Lincoln Ave.,
Penn, Mitchell E.	Springfield	Chadbourne 203
Pepi, Rose M.	Framingham	Thatcher
Perednia, Casper J.	Amherst	E-6 Fed. Circle, Amh.
Perekslis, Leon	Orange	Chadbourne 304
Perkins, Georgia E.	Springfield	Abbey
Perkins, Maynard M.	Wenham	303 N. Pl. St., Amh.
Perry, Henry	Winthrop	Greenough
Pickett, Richard D.	Northampton	Chadbourne 418
Pinckney, Norma P.	Dorchester	Abbey
Porter, Gilbert H.	Westfield	768 N. Pl. St., Amh.

Potter, William	Framingham	S.A.E.
Powers, John C.	Amherst	French Hall
Pratt, Margaret G.	Winsted, Conn.	Thatcher
Prendergast, Clovis A.	Northampton	Commutes
Presto, Alphonse R.	Holyoke	Q.T.V.
Price, James A.	Wantagh, New York	Phi Sigma Kappa
Prouty, Langdon Jr.	Littleton	A-7 Fed. Circle, Amherst
Prouty, Norman Peter	Springfield	21 Cowles Lane
Publicover, Harold J.	Arlington	46 Main St., Amherst
Purcell, Barbara T.	Haverhill	Chi Omega
Radlo, Jason L.	Brookline	401 N. Pl. St., Amherst
Randall, William	Roslindale	S-19 Comm. Circle
Ratner, Irving A.	Dorchester	R-8 Comm. Circle
Ray, Donald P.	Malden	S.A.E. 118 Sunset Ave., Amh.
Raymond, Robert G.	Auburn	Lambda Chi Alpha
Raynes, Everett J., Jr.	Chestnut Hill	Greenough 423
Reis, Robert A.	W. Chelmsford	SAE
Rice, Virginia A.	Melrose	Abbey
Richardson, Fred K.	Amherst	Commutes
Richardson, Patricia H.	Haverhill	328 Lincoln Ave., Amh.
Roberge, Joseph P.	Amherst	F-2 Fed. Circle, Amh.
Robertson, William F., Jr.	Amherst	5 Churchill St., Amh.
Robichaud, George F.	Greenfield	Commutes
Robinson, Barbara (Mrs.)	E. Longmeadow	24 Nutting Ave., Amh.
Robinson, George H., Jr.	N. Wilbraham	G. I. Village, Amh. College
Robinson, Louis	Chelsea	Greenough 101
Robinson, William E.	Chicopee Falls	Chadbourne 111
Rodriguez, Earl B.	Northampton	Phi Sigma Kappa
Rooney, Patrick H., Jr.	Boston	Butterfield
Roseman, Hyman	Lynn	R-34 Comm. Circle
Rosenfield, George	Roxbury	R-17 Comm. Circle
Rosenthal, Ruth C.	Brighton	Thatcher
Rossman, Irma L.	Brookline	Abbey
Rowe, Arthur E.	Springfield	Commutes
Rowe, Barbara P.	New Bedford	Thatcher
Roy, Norman J.	Southbridge	Greenough
Rubin, Merwin H.	Springfield	Tau Epsilon Phi
Rumminger, Herbert R.	Leeds	21 Reservoir St., Leeds
Runquist, George A.	Springfield	Theta Chi
Ryan, Mary G. A.	Amherst	Commutes
Sagan, Marc	Roxbury	Greenough 404
Samborski, Mitchell R.	Westfield	Alpha Gamma Rho
Sanctuary, Janet O.	Amherst	Commutes
SanSoucie, Robert L.	Adams	Kappa Sigma
Saulnier, Dorothy A.	Framingham	Abbey
Schekman, Frances	Springfield	Lewis
Schierloh, Robert	State Line	Chadbourne 317
Schlenker, Ruth E.	Lynnfield	North College
Schubert, Everett D.	Methuen	SAE
Segel, Joseph N.	Newton	Comm. Circle R-17
Sellar, Donald	Amherst	C-1 Federal Circle
Sevoian, Martin	Methuen	Chadbourne 219
Shaponik, Abraham M.	Springfield	Tau Epsilon Phi
Sheehan, Francis K.	Northampton	Commutes
Shore, Milton	Chelsea	T.E.P.
Shufelt, Bruce W.	Walpole	Phi Sigma Kappa
Shumway, Frank E.	Northampton	Kappa Sigma

Siegel, Lawrence H.	Dorchester	389 N. Pl. St., Amh.
Silbergleit, Allen	Springfield	Tau Epsilon Phi
Silverman, Lorraine R.	Chelsea	Thatcher
Sims, Alvin J.	Brockton	389 N. Pl. St.
Sindermann, Carl J.	North Adams	Plumtrees, Sunderland
Sirine, Gloria	Springfield	Thatcher
Skiff, Charles F.	Ft. Lauderdale, Florida	Chadbourne
Skippington, Marie C.	W. Brookfield	Abbey
Skolfield, Frederick C.	Brookline	Theta Chi
Slate, Margaret E.	Bernardston	Abbey
Smith, Howard B.	Easthampton	Lambda Chi Alpha
Smith, James M., Jr.	W. Springfield	Kappa Sigma
Smith, Richard N.	Bergenfield, N. J.	Lambda Chi Alpha
Snow, Charlotte A.	Middleboro	Lewis
Southwick, Beverly E.	E. Longmeadow	North College
Spivak, Calvin M.	Medway	T.E.P.
Spokowski, Walter	Northampton	Commutes
Spreiregen, Naomi	Dorchester	Thatcher
Staniszewski, Bernice	Palmer	Thatcher
Stenard, Paul D.	Turners Falls	SAE
Stern, Eileen T.	Lowell	Abbey
Stevens, Patricia M.	Amesbury	Abbey
Stevens, Waldo A.	Methuen	SAE
Strand, John H., Jr.	St. Paul, Minn.	H-1 Fed. Circle, Amh.
Sullivan, Arden C.	Holyoke	Thatcher
Sullivan, John F.	Holyoke	Phi Sigma Kappa
Sullivan, Norman	So. Hadley Falls	West Exp. Station
Sutton, Barbara M.	Amherst	Commutes
Sykes, Beverly B.	Chester	Thatcher
Szetela, Walter F., Jr.	Chicopee	Greenough
Tananbaum, Eileen R.	Brookline	Thatcher
Tassinari, Peter J.	Salem	R-3 Comm. Circle
Thatcher, Donald N.	W. Dennis	SAE
Therrien, Alvin A.	Chicopee Falls	Sigma Alpha Epsilon
Thomas, Robert M.	Needham	S-19 Comm. Circle
Thompson, Henry L.	Framingham	406 N. Pl. St
Thorne, Harry W.	Saugus	Chadbourne 101
Thresher, Leon C.	Hardwick	Greenough
Timberlake, James T.	Needham	Kappa Sigma
Tinkham, Barbara M.	Middleboro	Abbey
Tolman, Robert A.	Springfield	Draper Hall
Tolman, Roslaide M.	Chelsea	Thatcher
Tonet, Earl F.	Northampton	Kappa Sigma
Toohey, Robert W.	Chicopee	Chadbourne 109
Tower, True	Abington	Q.T.V., N. Pl. St.
Trombla, Alison	Amesbury	Abbey
Trott, Emily L.	Auburndale	Abbey
Trousdale, William M.	Boston	Greenough 220
Truesdale, Frank	Lynn	S-2 Comm. Circle
Trull, John P.	Dudley	Apt. 26, G. I. Village, Amherst College
Tunis, William D.	Easthampton	Phi Sigma Kappa
Urquhart, Duncan H.	Amherst	Fed. Circle E-5
Vail, Winthrop B.	Springfield	Kappa Sigma
Varney, Eugene H.	Great Barrington	Chadbourne 207
Vilker, Arlyne	Revere	Thatcher

Vondell, Jane S.	Amherst	Commutes
Vondell, Janet E.	Amherst	Commutes
Vondell, Philip A.	Amherst	Commutes

Walak, Anna E.	Berkshire	Pi Beta Phi
Walkowiak, Theresa J.	Webster	Thatcher
Walsh, Marilyn J.	Holyoke	Abbey
Waters, Corinne M.	Pittsfield	Abbey
Waugh, Clifton M.	New Braintree	K-5 Fed. Circle
Weidhaas, John A., Jr.	Northampton	Greenough 114
Weiner, Joseph George	Boston	Chadbourne
Wells, John J.	Amherst	Commutes
Wells, Lewis F., Jr.	Melrose	Trailer Camp
Wells, Paulina F. (Mrs.)	Arlington, Virginia	A-3 Fed Circle
Wells, William T. Jr.	Springfield	A-3 Fed Circle
Westcott, Wilma R.	Poultney, Vermont	Thatcher
West, Herbert	Fall River	Alpha Gamma Rho
West, Mildred L.	Fall River	Thatcher
Wetherbe, Franklin B.	Independence, Iowa	449 N. Pl. St., Amh.
Whitcomb, Ralph W., Jr.	Clinton	Chadbourne 321
White, John H.	Winchendon	Q.T.V.
Whorf, George C.	Shirley	SAE
Wilbur, Paul R.	Orange	Commutes
Wileikis, Elizabeth A.	N. Amherst	Commutes
Wilk, Julian J.	Adams	Chadbourne B-2
Winer, Nathan	Palmer	Commutes
Wirt, Edward B.	Holyoke	Greenough 206
Wolf, David	Dorchester	389 N. Pl. St.
Worthing, Ruth M.	Holyoke	Thatcher
Woynar, Michael	Amherst	Commutes
Wright, Charles M.	Northampton	Chadbourne 308
Wright, George E.	Northampton	Kappa Sigma

Yarosh, David	Roxbury	Greenough
Young, Alan N.	Belmont	Greenough
Young, Betty A.	Pittsfield	Abbey
Young, Edward	Roxbury	Chadbourne 316

Zukowski, Adolph M.	S. Deerfield	Chadbourne

CLASS OF 1950

Abrahamson, Israel	Greenfield	Chadbourne 101
Adams, Henry	Amherst	Commutes
Adams, Shirley	Hopedale	Thatcher 210
Adams, William	Pittsfield	Greenough
Addison, John	Northfield	Chadbourne 304
Aldrich, Mary	Springfield	Adams House
Alexander, Alexander	Hudson	Alpha Gamma Rho
Allen, Donald	Fairhaven	Commonwealth Circle
Allen, Lawrence	Lynn	Greenough
Anderson, Burton	Wellesley	303 No. Pleasant St.
Anderson, Clinton	Amherst	Commutes
Anderson David	Fitchburg	Federal Circle H-5
Anderson, Donald	Stoneham	Alpha Gamma Rho
Anderson Francis	Greenbush	Commonwealth Circle
Anderson, Fred	Fall River	Federal Circle E-8
Anderson, Frederick	Newton Centre	Theta Chi

Anderson, Leonard	Easthampton	Commutes
Andersen, Lorene	Portland, Me.	Thatcher
Andrews, Richard	Beverly	Greenough
Armato, Mary	Winchester	Thatcher
Athearn, William	Fall River	Chadbourne 213
Atkocius, Vitie	Worcester	472 No. Pleasant St.
Atlas, Myron	Winthrop	389 No. Pleasant St.

Babbitt, Richard	Wellesley	Chadbourne 303
Baier, John	Melrose	53 Meadow St.
Bailey, Ralph	New Bedford	Draper Hall
Bain, Harry	Lowell	Chadbourne 320
Baker, Simon	Revere	Chadbourne 412
Bangs, Joan	North Hatfield	Thatcher
Bardwell, Arthur	Hatfield	Draper Hall
Barlow, Kevin	Boston	Greenough
Barron, Roger	R.F.D., Ipswich	Draper Hall
Bartlett, Barbara	Worcester	Thatcher
Battit, George	Cambridge	Chadbourne
Baush, Edward	Holyoke	Federal Circle D-3
Beal, Edward	Wellesley	59 Phillips Pl. Northampton
Beal, Robert	Boston	472 No. Pleasant St.
Beers, Dorothy	Leominster	Thatcher 406
Bennett, Virginia	Danvers	Adams House
Bennett, William	South Hadley	Chadbourne 411
Berger, Jason	Haverhill	Greenough
Berkowitz, Norman	Boston	Chadbourne
Bernard, Joseph	Ashland	Greenough 301
Bernardin, Paul	Lawrence	Chadbourne 421
Bertocchi, Ida	Quincy	Thatcher 414
Billings, Esther	Plainfield	Thatcher
Billings, James	Rochester, Vt.	10 Tyler Place
Blanchard, Philip	Worcester	Greenough 210
Blodget, Warren	Leominster	Greenough
Blouin, Rachel	Whitinsville	Thatcher
Bolles, Doris	Pittsfield	778 No. Pleasant
Bonazzoli, Rosalind	South Sudbury	North College
Bonneville, Harold	Greenfield	Greenough 107
Bouchard, Charles	Haverhill	Chadbourne 209
Bourdeau, Bernard	Turners Falls	Commonwealth Circle
Bourque, Philip	Holyoke	Greenough 206
Bower, Zane	Chelsea	Commonwealth Circle
Boyle, John	Brockton	Greenough 103
Brayman, Lawrence	Springfield	Commonwealth Circle
Bresnick, Irene	Mattapan	Sigma Delta Tau
Bricknell, Carlton	Amherst	Commutes
Bringan, William	No. Adams	Chadbourne
Brooks, David	Waltham	Draper Hall
Bross, William	Brighton	Q.T.V.
Brown, Harrison	Eastondale	Chadbourne 212
Brown, Thomas	Roxbury	Greenough
Brunell, Sydney	Worcester	Chadbourne 404
Brunette, Harold	Amherst	12 Sunset Ct.
Buck, Ruth	Stoneham	Thatcher
Buckley, David	Boston	15 Sunset Ct.
Buckley William	Brockton	Chadbourne 202

Bugbee, Eugene	Chicopee	Chadbourne 324
Bukoski, Frank	No. Amherst	Commutes
Bulcock, Robert	New Bedford	Draper Hall
Burbutis, Paul	Lawrence	Chadbourne
Burnett, Phyllis	Federal Circle	Federal Circle H-3
Burnett, Priscilla	Housatonic	Thatcher
Burr, Elizabeth	Wilbraham	Thatcher
Burt, Richard	Brookfield	Greenough 422
Byrnes, John	W. Springfield	Greenough 106

Callahan, Frank	Framingham	Chadbourne
Carbone, Doris	Gardner	Thatcher
Carew, Ralph	Monson	Greenough 412
Carlson, Alan	Lynn	Chadbourne 415
Carmel, William	Holyoke	Commutes
Caron, Alexis	Indian Orchard	Greenough
Caron, Paul	Huntington	Commonwealth Circle
Carr, Eleanor	Chelmsford	Thatcher
Carr, Francis	Lowell	Commonwealth Circle
Carroll, Charles	Lowell	Commonwealth Circle
Casey, William	Gardner	Greenough
Cassidy, James	Worcester	Greenough 301
Cave, Morris	Florence	Commutes
Chadwick, Patricia	W. Boxford	Adams House
Chaffee, Thomas	So. Hadley	Commutes
Chamberlain, Elmer	Dighton	Chadbourne 310
Chandler, Edwin	W. Newton	Chadbourne 217
Channell, Paul	Beverly	Chadbourne 212
Chapdelaine Robert	Chicopee Falls	Chadbourne 105
Chapin, Robert	Northfield	58 Sunset Ave.
Charron, Ernest	New Bedford	Chadbourne 214
Chase, Estelle	Springfield	Thatcher
Chase, Frederick	E. Weymouth	Greenough 201
Chmura, Joseph	Chicopee	Greenough 115
Clancy, Gratia	Mt. Tom	Commutes
Clark, George	Foxboro	Chadbourne
Clark, Joanne	Greenfield	Thatcher
Clark, Thomas	Springfield	Chadbourne 119
Cohen, Eliot	Springfield	Chadbourne
Cohen, Merwin	Holyoke	Greenough 217
Colbert, Edward	No. Adams	Greenough 204
Cole, Phyllis	Methuen	Thatcher
Congdon, Eugene	Great Barrington	30 North Hadley Rd.
Coogan, Edward	Millers Falls	Commutes
Cooke, Anson	Methuen	Chadbourne
Cooper, Murray	Roxbury	Chadbourne 305
Cordner, William	Belchertown	Commonwealth Circle
Cormack, James	Ludlow	Greenough 224
Cornish, Raymond	Watertown	Greenough 108
Corrinet, Robert	Pittsfield	Chadbourne
Cossar, Bernard C.	Brookfield	Chadbourne
Cote, Mary Lou	W. Springfield	Abbey
Cotton, Webster E.	Florence	Greenough 214
Cousineau, Edward F.	Springfield	Chadbourne 107
Couture, Lawrence H.	N. Wilbraham	Chadbourne 105
Cowles, John C.	Ipswich	G. I. Village, Amherst College
Creed, William C.	Beverly	Chadbourne 317

Crosby, Jacqueline	Haverhill	North College
Crowell, Eleanor	Sandwich	Abbey
Curley, John M.	Greenfield	Greenough 117
Curran, Barbara A.	Longmeadow	Pi Beta Phi
Currier, Raymond A.	Salisbury	Chadbourne
Daly, Daniel R.	Gardner	Greenough 407
Damon, John U.	Lowell	Chadbourne
Dean, Douglas	Holyoke	Chadbourne 223
Dean, Randell L.	Shrewsbury	Chadbourne 301
Delevoryas, Theodore	Chicopee Falls	East Experiment Station
Denning, Henry R.	Ipswich	Chadbourne 213
Denny, Howard E.	Northampton	Commutes
DeNyse, John L.	Amherst	Commutes
Dickman, Mary L.	Rockport	Thatcher
DiGrappa, Yolanda A.	Maynard	Thatcher
Dillard, Janice A.	Pittsfield	Thatcher 409
Dimock, Ruth E.	Oxford	Thatcher
Doane, Oscar C., Jr.	New Hampshire	Commonwealth Circle R-29
Dobias, William	Colrain	Commutes
Doherty, Paul T.	Hopkinton	Chadbourne 214
Dolan, Richard T.	Worcester	Butterfield 405
Doliber, Alden	West Newton	Chadbourne 217
Donahue, Barbara A.	Winthrop	Thatcher 309
Donoghue, Mariellen	Holyoke	Thatcher
Doran, Stephen P.	Amherst	Commutes
Downey, John E.	Dudley	Greenough
Downing, Everett G.	Fairhaven	Chadbourne 112
Doyle, John R.	Revere	Chadbourne 324
Drago, Russell S.	Turners Falls	Commonwealth Circle S-3
Drevinsky, Peter J.	Middleboro	Commonwealth Circle T-31
Drewniany, Henry F.	Westfield	Greenough
Drohan, Leonard J.	So. Hadley Falls	31 Mt. Pleasant
Dubois, John H.	Maywood, New Jersey	Alpha Gamma Rho
Dugas, Paul J.	Lynn	Alpha Gamma Rho
DuMond, Jack L.	Springfield	Chadbourne
Dunton, Sewell N., Jr.	Greenfield	Commutes
Dwyer, Philip	Holyoke	Greenough 415
Eddy, Robert D.	Amherst	Commutes
Egan, John S.	Amherst	Federal Circle E-7
Ellsas, Janice	Fall River	Thatcher
Estelle, Arnold J.	West Springfield	24 Nutting Ave. c/o Mrs. O. C. Roberts
Evans, William T.	Springfield	Chadbourne 117
Ewing, Jean O.	East Bridgewater	Abbey
Farnsworth, Nancy	Worcester	Thatcher
Ferguson, Claire	Westford	Thatcher
Ferreira, Antonio	Holyoke	Commutes
Field, Thomas W.	Greenfield	Commutes
Feinman, Harold	Brighton	T.E.P.
Fischer, Betty L.	Newton Centre	Thatcher
Fitzgerald, John M.	Amherst	Commutes
Fitzpatrick, William A.	Rochdale	Wendell Rd., Shutesbury
Flaherty, William D.	Belchertown	Commutes
Fletcher, Gardner B.	Springfield	Greenough 106
Florini, Francis C.	North Adams	Draper Hall 9
Flynn, John E.	Springfield	Chadbourne 301

Fontaine, Edward C.	Haydenville	Commutes
Footit, Douglas B.	Springfield	24 Nutting Ave.,
Francer, Sydney H.	Mattapan	Greenough 118
Freeman, Barbara L.	Kittery, Maine	Thatcher
Freeman, John J.	Milton	Chadbourne 131
Fuller, Brewster W.	East Bridgewater	75 Sunset Ave.
Fulton, Wallace R.	Amherst	Commutes
Funkhouser, Edward K.	Montclair, N. J.	T-30 Commonwealth Circle

Gabrielsen, David G.	Webster	222 Greenough
Gaffney, Michael C.	Reading	407 Chadbourne
Gagnon, Paul A.	Springfield	117 Chadbourne
Gaines, Walter A.	Greenfield	Commutes
Gallamore, William A.	West Springfield	Alpha Gamma Rho
Gallotta, Diana L.	North Attleboro	Thatcher
Ganley, Robert V.	Lawrence	402 Chadbourne
Gardner, Leonard F.	Amherst	Commutes
Gardner, Robert M.	Amherst (Pelham)	Commutes
Gerardo, Henrique	Holyoke	201 Chadbourne
Gfroerer, Wayne F.	Melrose	T-34 Commonwealth Circle
Gibbs, Irving	Chelsea	T-24 Commonwealth Circle
Gibbs, Shirley	Malden	Thatcher
Gilboard, John	Lawrence	318 Greenough
Gildersleeve, Robert T.	Waban	Mt. Pleasant Inn
Gill, Lillian J.	Bondsville	209 Thatcher
Gilman, Dorothy L.	Malden	Thatcher
Giordano, Rosemary D.	Everett	Thatcher
Godin, Roger J.	Longmeadow	414 No. Pleasant
Goldfarb, Charles C.	Dorchester	461 No. Pleasant
Goodman, Rose S.	Spencer	Thatcher
Goodman, Theodore J.	Chelsea	461 No. Pleasant
Goodspeed, Roger A.	Osterville	Kappa Sigma
Gorski, Theodore J.	Holyoke	Chadbourne
Gould, Walter P.	North Adams	T-23 Commonwealth Circle
Gracey, James D.	Springfield	Greenough
Graham, John H.	Worcester	20 Kendrick Pl.
Grainger, Donald B.	Northampton	Commutes
Grant, Harold D.	Natick	413 Chadbourne
Green, Arnold J.	Worcester	404 Chadbourne
Green, H. Richard	Shrewsbury	Chadbourne
Grice, Frank	Taunton	Sigma Alpha Epsilon
Grosser, Bernard I.	Brookline	Chadbourne
Gullans, Rolf O.	West Springfield	321 Draper
Gunn, Stuart R.	Sunderland	317 Greenough

Hadley, Colin H.	Lynn	105 Greenough
Haines, C. William	Masonville, N. J.	Alpha Gamma Rho
Hakes, Margot F.	Longmeadow	Thatcher
Hall, Harold F.	Amherst	Federal Circle, L-1
Hamilton, William W.	New Salem	Commutes
Hammel, Faye	Revere	Sigma Delta Tau
Hampson, Fred J.	Holyoke	Commutes
Hannon, Lawrence P.	Worcester	73 Butterfield Ter.
Harrington, Anne A.	Worcester	Thatcher
Harrington, James J., Jr.	Springfield	Chadbourne
Harris, Franklyn S.	Oak Ridge, Tenn.	401 Chadbourne
Hart, Willis K.	West Springfield	104 Chadbourne
Hartwell, Harry D.	Springfield	401 Chadbourne
Hartwell, Phyllis W.	Acton	Thatcher
Hasbrouck, Philip B.	Amherst	Commutes
Haskell, Joan D.	Boston	Thatcher
Hattin, Donald E.	North Scituate	415 Chadbourne

Hauschild, John E.	South Hadley	27 Woodside Ave.
Heard, Ralph S.	Amesbury	Clark Hall
Hebb, Robert G.	Worcester	318 Chadbourne
Hill, William B.	Springfield	39 Paige St.
Hilyard, Joseph R., Jr.	Everett	Lambda Chi Alpha
Hobson, Bruce C.	Taunton	Chadbourne
Hockridge, Ralph R.	Pittsfield	218 Greenough
Holmes, Arthur J.	West Brookfield	412 Greenough
Holt, Warren M.	North Amherst	Commutes
Holway, Warren A.	Northampton	214 Greenough
Houran, Clement P.	Ashburnham	Theta Chi
Huckins, Robert K.	Winchester	220 Chadbourne
Humphrey, Richard L.	Roslindale	4 Sunset Ct.
Hyder, Grace M.	Methuen	Thatcher

Iampietro, Patsy F.	Middleboro	S-16 Commonwealth Circle
Insuik, Nathan M.	Chelsea	401 No. Pleasant
Issenberg, Daniel	Methuen	421 Chadbourne

Jakobek, Adolph	Hadley	Commutes
Janofsky, Lenoard J.	Mattapan	201 Chadbourne
Jerome, Arthur B.	Holyoke	323 Greenough
Johnson, Norman E.	Worcester	T-12 Commonwealth Circle
Johnston, Evan V.	Easthampton	R-3 Commonwealth Circle
Jones, Robert A.	Milton	11 Draper

Kaitz, John J.	Brookline	316 Chadbourne
Katsanos, John T.	Chicopee	402 Chadbourne
Katz, David J.	Springfield	106 Chadbourne
Kelleher, David	Greenfield	Commutes
Kelsey, Robert J.	Cambridge	204 Greenough
Kendall, Robert C.	Worcester	14 Allen St.
Kennedy, Claire T.	Springfield	314 Thatcher
Kenyon, Russell R.	Northampton	Apt. F-8 Fed. Cir.
Keough, Allen H.	Winthrop	Alpha Gamma Rho
Keroack, Alvin J.	Bondsville	Commutes
Khazai, Gholi A.	Teheran, Iran	179 Lincoln Ave.
King, Charles M.	Greenfield	Commutes
Kinghorn, Barbara Anne	Pittsfield	Thatcher
Kinghorn, Mildred E.	Pittsfield	Pi Beta Phi
Kingsbury, John M.	Framingham	S-32 Commonwealth Circle
Knowland, Richard G., Jr.	Goshen	Chadbourne
Knox, Clifford J.	Springfield	67 McClellan St.
Kolman, Merrell B.	Pittsfield	217 Greenough
Kolovson, Burton J.	Malden	Chadbourne
Kopp, George T.	Cambridge	Phi Sigma Kappa
Kosarick, Everett A.	North Weymouth	T-19 Commonwealth Circle
Kossakoski, Edward C.	Northampton	213 Greenough
Kramer, Frank E.	West Roxbury	419 Chadbourne
Kreiger, Elizabeth A.	Pittsfield	North College
Kuhn, Robert L.	Springfield	317 Greenough
Kulas, Frank S.	Hadley	S-34 Commonwealth Circle

La Barge, Lionel J.	Leeds	395 North Pleasant St.
Labbee, Marcel D.	Holyoke	Apt. C-4 Fed. Cir.
Laby, Morton R.	Holyoke	Tau Epsilon Phi
Ladd, John F.	Dalton	401 North Pleasant St.
Lajoie, Francis R.	West Springfield	411 Greenough
Lake, Stanley W.	Needham	Greenough
La Liberte, Richard P.	Wayland	102 Greenough
Lamoreaux, Philip M.	Bedford	35 Kelley Sq.
Landry, Robert J.	Gloucester	212 Chadbourne
Lane, John P.	Winthrop	324 Greenough

Laurilliard, Arthur S.	Springfield	107 Chadbourne
Lawrence, Barbara J.	Springfield	Adams House
Learned, Wilfred, Jr.	Florence	T-14 Commonwealth Circle
Leblanc, Gerald F.	Gardner	T-4 Commonwealth Circle
Le Clair, Louise M.	Southbridge	36 Nutting Ave.
Lee, Eleanor	Rowe	North College
Lehnert, Harry G., Jr.	Lawrence	205 Chadbourne
L'Esperance, Charles H.	South Hadley Falls	R-4 Commonwealth Circle
Levine, Laura	Lynn	Thatcher
Liberman, Samuel	Westfield	T-35 Commonwealth Circle
Lieberwirth, William	Florence	Lambda Chi Alpha
Limburg, Alan M.	Windsor	303 Chadbourne
Lipston, Calvin D.	Newtonville	412 Chadbourne
Lit, Joseph	Roxbury	264 N. Pleasant St.
Litman, Irving I.	Chelsea	420 Chadbourne
Litsky, Thelma R.	Fitchburg	409 N. Pleasant St.
London, Leonard S.	Watertown	205 Chadbourne
Looney, William P.	Worcester	R-4, Comm. Cir.
Lucey, Robert F.	Worcester	Chadbourne
Luongo, Carmine J.	Winchester	417 Chadbourne
Lynch, Glenn P.	Leominster	317 Chadbourne
MacCollom, George B.	Roslindale	4 Sunset Ct., Amherst
MacDonald, Duncan	Braintree	207 Chadbourne
MacDonald, Kenneth G.	Somerville	Greenough
Mach, Joseph F.	Holyoke	Q. T. V.
MacKay, William D.	Holden	316 Greenough
MacNulty, Bradford S.	Westfield	Greenough
MacVicar, Ann	Grafton	406 Thatcher
Mailloux, Melvin R.	Wellesley Hills	405 Greenough
Maisner, Walter P.	Leverett	Commutes
Manganard, Anthony	Everett	119 Greenough
Manning, John F.	Wakefield	17 Draper Hall
Marble, Ralph P., Jr.	West Berlin	26 Draper Hall
Marini, Dominic A.	Concord	221 Chadbourne
Marsden, Ralph E., Jr.	Worcester	423 Greenough
Marston, Miriam E.	Shrewsbury	Thatcher Hall
Martin, John A.	Lowell	T-16 Comm. Cir.
Martin, Louise F.	Amherst	Commutes
Marvel, Mason E.	Haydenville	Commutes
Mason, Eugene F.	Belmont	221 Greenough
Mathews, William E., Jr.	Palmer	416 Chadbourne
Maurice, George E.	Shrewsbury	312 Chadbourne
Maynard, Floyd R.	Millers Falls	T-18 Comm. Cir.
McAvoy, Thomas F., Jr.	Lawrence	209 Chadbourne
McCarthy, James P.	Westfield	Hubbards, Pleasant St.
McCarthy, Thomas A.	North Bernardston	Phi Sigma Kappa
McDonald, James K.	Northampton	Comm. Circle
McEachern, Robert W.	Worcester	Chadbourne
McElroy, Ann	Orange	Thatcher
McGrath, Martin J., Jr.	Holyoke	Commutes
McKinney, Harvey J.	Springfield	T-4 Comm. Circle
McLaughlin, Joan S.	Woburn	Thatcher
McTigue, William E.	Thorndike	406 Chadbourne
Mellor, Florence E.	Fall River	Thatcher
Merritt, Benn H.	Worcester	208 Greenough
Merrill, Grace E.	Lowell	North College
Meyer, Robert J.	New Bedford	223 Chadbourne
Midgley, Robert M.	Worcester	S-7 Comm. Circle
Milan, Richard M.	Dorchester	117 Greenough
Miller, Homer B., Jr.	Needham	219 Greenough
Mitchell, Helen M.	Easthampton	Thatcher
Mitchell, Ralph G.	Waltham	309 Chadbourne

Momnie, Paul E.	Chicopee Falls	Kappa Sigma
Monroe, Bertha A.	Winchendon	Adams House
Moody, Marion E.	Waban	Thatcher
Moore, Donald	Kingston	213 Greenough
Morano, Mary C.	Pittsfield	North College
Moreau, John V.	Fairhaven	222 Greenough
Morell, Roger J.	Greenfield	Chadbourne
Morin, Morton E.	Worcester	206 Chadbourne
Morin, Walter R.	Pittsfield	224 Chadbourne
Morrison, Daniel K., Jr.	Springfield, Vt.	Q. T. V.
Moustakis, Christopher G.	Boston	309 Chadbourne
Muka, Arthur A.	Greenfield	Alpha Gamma Rho
Mullin, William F.	Littleton	112 Greenough
Mutter, Rudolph F.	Easthampton	214 Greenough
Myers, Harold E.	Northampton	Kappa Sigma
Nadeau, Horace F.	Gardner	204 Chadbourne
Natale, Joseph V.	Northampton	Commutes
Newell, Arthur E., Jr.	Arlington	220 Chadbourne
Newton, Chandler N.	Athol	27 Woodside Ave.
Nickerson, Richard G.	East Harwich	East Exp't Station
Northern, H. Clifton, Jr.	Boston	101 Greenough
Norwood, Robert	Springfield	106 Greenough
Novotny, George W.	Northampton	395 No. Pleasant St.
Nunes, Manuel	West Wareham	108 Chadbourne
O'Brien, Thomas J.	Taunton	223 Chadbourne
O'Connell, Joseph D.	South Hadley Falls	R-1 Comm. Circle
O'Connell, Robert F.	Northampton	224 Chadbourne
O'Connor, Leonard A.	Springfield	Lambda Chi Alpha
O'Keefe, F. Irene	Melrose	Thatcher
Okolo, Thaddeus J.	Amherst	Commutes
Oliver, Yvonne B.	Springfield	Thatcher
O'Malley, Justin L.	Springfield	218 Chadbourne
O'Neil, John E.	Saugus	112 Greenough
Ornsteen, Alan C.	Haverhill	318 Greenough
O'Rourke, Mary M.	Holyoke	Commutes
O'Rourke, Patricia A.	Westfield	Chi Omega
Osgood, Ralph B., Jr.	Greenfield	216 Greenough
Ouellette, Raymond D.	Lowell	405 Greenough
Padykula, Frank J.	Chicopee	Chadbourne
Panzica, Anthony J.	Northampton	Commutes
Parent, Ernest L.	Springfield	Commutes
Parker, Clarence W.	Feeding Hills	Apt. D-2 Fed. Cir.
Parks, Richard B.	Plymouth	210 Chadbourne
Pasini, Robert M.	Springfield	Lambda Chi Alpha
Patterson, Shirley E.	Amesbury	Thatcher
Paul, Edwin A.	Jamaica Plain	99 E. Pleasant St.
Pearce, William W.	W. Swanzey, N. H.	211 Chadbourne
Pender, Theresa A.	Pittsfield	Pi Beta Phi
Pendleton, Harlow E.	Fitchburg	423 Greenough
Perednia, Edward L.	Norwood	111 Chadbourne
Perkins, Jean Z.	Brockton	Chadbourne
Perkins, Russell G.	Springfield	Kappa Sigma
Perry, Paul A.	Cheshire	Chadbourne
Peterson, Ann G.	Duxbury	Adams House
Peters, David M.	Jamaica Plain	311 Chadbourne
Pettie, Foster B.	Corono, N. Y.	S-29 Comm. Cir.
Phalon, Paul R.	Newton Centre	204 Chadbourne
Pierce, Edward R.	St. Stephens, N. B., Canada	108 Greenough
Pierce, Frederick G.	Auburndale	216 Chadbourne

Pierce, Robert G.	W. Concord	422 Chadbourne
Pigeon, Alfred E.	E. Montreal	109 Greenough
Pilgrim, Earl N.	Westfield	411 Chadbourne
Piper, Mary G.	Framingham	Adams House
Piusz, Stephen P.	Chicopee Falls	Greenough
Ponte, Albert G.	New Bedford	Chadbourne
Poor, Harriet E.	Townsend	Thatcher
Porter, Robert A.	Holyoke	Commutes
Powell, William E.	North Adams	312 Chadbourne
Powers, Lael H.	Northboro	Thatcher
Powers, Patricia A.	Braintree	North College
Progulske, Donald R.	Springfield	Commutes
Promisel, Sheldon M.	Chelsea	401 N. Pleasant St.
Prucnal, Chester S.	Hatfield	116 Greenough
Putala, Eugene C.	Millers Falls	315 Chadbourne

Quint, Earl	Newton Centre	Tau Epsilon Phi

Race, Cheryl	Northampton	Thatcher
Ray, Marvin W., Jr.	Brookline	321 Chadbourne
Re Hill, Edwin A.	Melrose	Alpha Gamma Rho
Reid, Abbott F.	Beverly	422 Chadbourne
Reisman, Abraham J.	Springfield	Commutes
Rettie, Alfred J.	Northampton	Commutes
Richards, Ramona I.	Worcester	Adams House
Rikert, John A.	East Northfield	417 Chadbourne
Rittenberg, Janice	Mattapan	Thatcher
Roberts, Edythe D.	Amherst	Commutes
Robinson, William C.	New Bedford	216 Greenough
Robitaille, Charles F.	Springfield	Q. T. V.
Rogers, John P.	Beverly	Greenough
Rollins, Franklin D.	Chatham	Chadbourne
Rose, George E.	Truro	101 Chadbourne
Roth, Emanuel M.	Roxbury	201 Chadbourne
Roy, Donald J.	Worcester	Sigma Alpha Epsilon
Rubin, Lois	North Adams	Thatcher
Ruggles, Louis H.	Hardwick	Greenough
Ryan, Edward M.	Amherst	Commutes
Ryder, William S.	W. Dennis	111 Greenough

Sabin, William I.	North Adams	106 Chadbourne
Sadick, David W.	Worcester	302 Chadbourne
Sagan, Eliot H.	Winthrop	Chadbourne
Santoro, Jean C.	Franklin	421 Greenough
Saphirstein, Jerome W.	Brookline	115 Greenough
Scannell, Gerald	Springfield	209 Greenough

Schreiber, Marvin M.	Springfield	420 Chadbourne
Scolnick, Robert M.	Brookline	106 Chadbourne
Scribner, Herbert F.	W. Peabody	Apt. A-6, Fed. Cir.
Selig, Arthur E.	Belmont	302 Chadbourne
Serex, Paul	Amherst	Commutes
Shatz, Chester	Revere	Chadbourne
Shensky, Henry L.	Greenfield	109 Greenough
Siano, Thomas F.	Greenfield	323 Chadbourne
Silverman, Joan N.	Lawrence	Sigma Delta Tau
Simons, June P.	Haverhill	Pi Beta Phi
Sisson, Donald E.	N. Dartmouth	Alpha Gamma Rho
Skahill, Elizabeth	Middleboro	Thatcher
Slavin, Bernard M.	Winthrop	Tau Epsilon Phi
Sleeper, Elinor J.	Haverhill	Thatcher
Slowinski, Edwin A.	Greenfield	323 Chadbourne
Smith, Barbara R.	Springfield	Thatcher

Smith, Dorothy C.	East Lynn	Thatcher
Smith, Ian B.	Worcester	Ferry's Folly, Cushman
Smith, M. Allene	Wollaston	Thatcher
Smith, Paul S.	R. F. D., Maynard	T-3 Comm. Circle
Smith, Philip R.	West Springfield	321 Draper Hall
Smith, Sheldon E.	Plainville	218 Greenough
Smith, William V.	Medford	220 Greenough
Smith, Zilpha F.	East Longmeadow	315 Lincoln Ave.
Snow, Russell E.	Greenfield	Commutes
Souliere, Loretta R.	Springfield	Thatcher
Sowerby, Clifton E., Jr.	Marlboro	116 Chadbourne
Spear, Edgar W.	Everett	Apt. H-7, Fed. Cir.
Staniunas, Charles E.	Hudson	Greenough
Stark, John R.	Northampton	403 Greenough
Stearns, John W.	Newtonville	419 Chadbourne
Steele, John, Jr.	Williamstown	264 N. Pleasant St.
Stein, Richard B.	No. Weymouth	103 Greenough
Steinbeck, Edna E.	Amherst	Commutes
Stoyle, Judith	Wollaston	North College
Struzziero, Edmund J.	Stoughton	Lambda Chi Alpha
Stuck, Earl N.	Amherst	Commutes
Sudhalter, David L.	Mattapan	Tau Epsilon Phi
Swanick, James T.	Newton Centre	Greenough
Sundstrom, George L.	Worcester	14 Allen St.
Sweeney, William D.	Whitman	Chadbourne
Swensen, James H.	Arlington	115 Greenough
Swift, Lawrence K.	Attleboro	6 So. East St.,
Swindell, June F.	Barre	Thatcher
Sylvia, Theodore R.	Dartmouth	Alpha Gamma Rho
Tague, William H., Jr.	Amherst	Commutes
Tetrault, Nellie L.	Amherst	Commutes
Tetrault, Robert W.	Springfield	Theta Chi
Thibeault, Donald A.	Rockland	214 Chadbourne
Thomas, Dale S.	Cushman	Commutes
Thompson, Chester B.	Southbridge	Chadbourne
Thompson, John G.	Holyoke	Commutes
Toczydlowski, Albert H.	Sunderland	Phi Sigma Kappa
Todd, Leonard A.	Worcester	Chadbourne
Toomey, James P.	Danvers	210 Chadbourne
Torres, Anita M.	East Longmeadow	Thatcher
Traynor, Betty A.	Swansea	Thatcher
Treshinsky, Edward	Lawrence	Alpa Epsilon Pi
Trimble, Henry G.	Shutesbury	Commutes
Trombley, Raymond G.	Wilbraham	Commutes
Trott, Gordon R.	Rehoboth	310 Chadbourne
Troy, William J.	Pittsfield	Lambda Chi Alpha
Trufant, Carolyn C.	North Carver	Thatcher
Trullson, A. Ruth	Brighton	Thatcher
Turner, Thomas A.	Lowell	418 Greenough
VanBlarcom, Jacquelyn R.	Lynn	Chi Omega
Vigneau, Francis J.	Florence	T-12 Comm. Cir.
Vrachos, Nicholas	Gloucester	Greenough
Walker, John D.	Lynn	B-2 Chadbourne
Wallace, Nancy M.	Springfield	Thatcher
Walz, Thomas C.	Belmont	322 Greenough
Warner, Mildred E.	Sunderland	Commutes
Washburn, Barbara E.	Westfield	Thatcher
Waters, Shirlie	Gardner	Adams House
Weinstein, Lewis	Mattapan	420 Chadbourne

Weinstein, Nathan	Dorchester	414 N. Pleasant St.
Weinswig, Sherwin E.	Lynn	Greenough
Weisse, Walter G.	Springfield	204 Chadbourne
Wells, Mary W.	Greenfield	Thatcher
West, James E.	Dorchester	402 Chadbourne
Westcott, Donald E.	Springfield	119 Greenough
Westcott, Hope G.	Rehoboth	Adams House
Westwater, Joseph J.	Dorchester	Chadbourne
White, Charles J.	Worcester	Kappa Sigma
Whitney, Earle D.	Charlton City	224 Chadbourne
Wilbur, Paul R.	Orange (New Salem)	Commutes
Wilczynski, Agnes F.	S. Deerfield	Adams House
Williams, Earle M.		Feeding Hills
Winer, Earl	Springfield	217 Greenough
Wing, William P.	Holyoke	R-35 Comm. Cir.
Winn, William L.	Brookline	Alpha Epsilon Phi
Winston, Norman A.	Northampton	T-8 Comm. Cir.
Winterhalter, Robert P.	Framingham	403 Greenough
Winton, John J.	Stoneham	Lambda Chi Alpha
Wisnoski, Francis J.	Ware	Kappa Sigma
Wolff, Peter	Springfield	T-24 Comm. Cir.
Wood, Barbara A.	Ludlow	Chi Omega
Wood, Robert C.	Taunton	208 Greenough
Woods, Charles B.	Northampton	Commutes
Wright, Patricia A.	Watertown	Thatcher
Wynn, Richard P.	Holyoke	Lambda Chi Alpha
Yahnis, Christopher J.	Roxbury	107 Chadbourne
Yaloff, Abraham S.	Lynn	206 Chadbourne
Yergeau, Isidore	Chicopee	Lambda Chi Alpha
Youland, George C.	Boston	210 Chadbourne
Zaorski, Henry J.	Northampton	Commutes
Zebrowski, George J.	Holyoke	20 Kendrick Pl.
Ziemba, Theodore J.	Chicopee Falls	Kappa Sigma
Ziwotowski, Fred	Indian Orchard	119 Greenough
Zmaczynski, Boleslaw E.	Northampton	Commutes

CLASS OF 1951

First Semester 1947-48

Abbott, Herman C.	Beverly	Butterfield
Abrams, Herbert	Dorchester	Chadbourne 423
Abramson, William M.	Worcester	Butterfield
Acheson, Elizabeth	S. Westport	Lewis Hall
Aldrich, Malcolm S.	E. Braintree	Butterfield 218
Aldrich, Muriel	Ashland	Lewis Hall
Andersen, Robert P.	Newton Centre	Butterfield
Anderson, Donald F.	Shelburne Falls	Butterfield 403
Anderson, Martin L.	Palmer	Butterfield
Anderson, Winthrop T.	Shelburne Falls	Butterfield
Angelini, Joseph	Danvers	Butterfield 219
Armstrong, John C.	Winchester	Butterfield
August, William J.	Northampton	Commutes
Baginski, Joan E.	Holyoke	Commutes
Baker, Kenneth E.	Worcester	Butterfield 115
Baker, Robert C.	Hanson	Butterfield
Barbadora, Albert V.	Winchendon	Butterfield
Barone, Joseph G.	Palmer	Butterfield
Barr, Arnold A.	Springfield	Butterfield 214
Barstow, Arthur W.	S. Hadley	Commutes

Beaulac, Raymond R.	Holyoke	Butterfield 311
Beaumont, Russell H.	Greenfield	Butterfield 227
Beavuais, Paul V.	Holyoke	Butterfield 102
Beauvais, Pauline C.	Holyoke	Commutes
Belville, John C.	S. Hadley	Butterfield 126
Bemis, Roscoe H.	Fitzwilliam, N. H.	Farm Bungalow
Bennett, Ovell F.	Middleboro	Butterfield
Benson, David A.	Northampton	Commutes
Benson, Raymond G.	Northampton	Commutes
Berger, Dorothy M.	N. Attleboro	Lewis Hall 219
Blackadar, Albert B.	Ward Hill	49 Fearing St.
Blanciforti, Rosemary A.	Dorchester	Lewis Hall
Blauer, Charles L.	Belmont	Butterfield
Bloomfield, Shepard	Brockton	Butterfield 201
Bolton, Faith	Duxbury	Lewis Hall 411
Bornstein, Norman D.	Roxbury	Butterfield 112
Bracci, Merrill R.	Mendon	Butterfield 219
Breen, Mary A.	Southbridge	Lewis Hall
Briand, Marjorie M.	Farnumsville	Lewis Hall
Brody, Jacob I.	Chelsea	Butterfield
Brown, Doris	Orange	Lewis Hall
Buck, Edgar H., Jr.	Warren	Butterfield 229
Buckley, Kathleen M.	Lawrence	Lewis Hall
Burrer, Ann M.	Greenfield	Commutes

Camann, Ruth D.	Athol	Lewis Hall 116
Campbell, Lois M.	W. Brookfield	Lewis Hall
Canty, Edgar T.	Chicopee	Butterfield
Chadwick, James W., Jr.	W. Boxford	Butterfield 127
Chorebamian, Alice	Newburyport	Lewis Hall
Christiansen, Arnold B., Jr.	Lynn	Butterfield 323
Clayton, Herbert M.	Brookline	Butterfield 116
Cliche, George F.	Holyoke	Butterfield 130
Cohen, Arnold M.	Everett	Butterfield
Cohen, Jacqueline M.	Lawrence	Lewis Hall
Cohen, Ruth A.	Brookline	Lewis Hall
Cole, Arthur	Northboro	Butterfield
Cole, Joan	Saxonville	Lewis Hall
Collins, Jeanne M.	Medford	Lewis Hall
Collins, Philip R.	Arlington	Butterfield 216
Colodny, Paul C.	Northampton	Butterfield
Conlon, Maureen K.	Lowell	Lewis Hall
Conlon, William L.	Amherst	Commutes
Cooney, Virginia L.	Chester	Lewis Hall
Cornell, Alan	Fall River	Butterfield 302
Costello, Donald F.	Watertown	Butterfield 110
Crasnick, Gerald M.	Winthrop	Butterfield 321
Creed, Fred N., Jr.	Beverly	Butterfield 129
Crone, Sue	Shelburne Falls	Lewis Hall
Cronin, Cathleen H.	Bradford	Lewis Hall
Crowell, Ruth A.	E. Dennis	Lewis Hall 119
Cummings, Bruce	W. Roxbury	Butterfield 329
Curran, James M.	Marlboro	Butterfield 324
Cushing, Louise H.	Roxbury	Lewis Hall
Cutting, Kenneth A.	Shrewsbury	Butterfield
Czarnecki, L. Loretta	Willimansett	J-2, Fed. Circle
Czelusniak, Walter A.	Easthampton	Commutes
Davenport, Ruth S.	Shelburne Falls	Lewis 112
Davis, Frederic W., Jr.	Northampton	Commutes
Davis, Warren C.	Wayland	Greenough 211
Day, Barbara J.	Northboro	Lewis
Dean, Barbara A.	Belmont	Lewis
Dean, Philip J.	Holyoke	Butterfield 222

Dellea, M. Joan	Great Barrington	Lewis
Devine, Edwin E.	West Yarmouth	Butterfield 208
Diamond, Daniel E.	Brighton	Butterfield 321
Dill, Charles B.	Absecon, New Jersey	Greenough 211
Donahue, Edward F.	Southboro	Butterfield
Donovan, John L. A.	Marblehead	Butterfield
Doress, Irvin	Brockton	Butterfield
Doucette, Paul E.	Reading	Butterfield 230
Dougas, Anthony	Lynn	Butterfield
Doyle, Robert B.	Chicopee	Butterfield 315
Driscoll, Francis G.	Malden	Poultry Plant
Duckworth, Marilyn	Swansea	Lewis
Duncanson, Frederick	Clinton	Butterfield 314
Dunn, John J.	New Bedford	Butterfield 116
Durant, Joseph H.	Springfield	Butterfield

Embler, Thomas N.	East Dennis	Butterfield 208
Estabrooks, Samuel E.	North Orange	Butterfield
Evers, Herman L.	Malden	Butterfield R-312

Falconer, Norma A.	Ludlow	Lewis 419
Fanning, Beryl (Miss)	Brockton	Lewis
Farrar, Norman C.	Auburn	Butterfield 209
Fayan, Louis F., Jr.	S. Swansea	Butterfield
Feener, Grace I.	Arlington	Lewis
Feldman, Louise E.	Brighton	Lewis 116
Firmanich, Edna M.	Holyoke	Lewis 402
Flynn, Martin F.	Pittsfield	Butterfield 101
Flynn, Robert J.	Florence	Commutes
Fortin, Dorothy A.	Adams	Lewis
Fortunato, Mario J.	Beverly	Butterfield
Fournier, Beverly E.	East Douglas	Lewis
France, Barbara	South Amherst	Commutes
France, Joan	South Amherst	Commutes
Francis, Gordon H.	Taunton	Butterfield
Frankel, Seymour M.	Springfield	Butterfield
Frank, Irene	Brookline	Lewis
French, Lydia A.	Newport, R. I.	Lewis
Fuller, Gertrude A.	Foxboro	Lewis
Fuller, John I.	Ware	Butterfield 304

Gagnon, Raymond R.	Adams	Poultry Plant
Gaines, Arthur L.	Greenfield	Commutes
Gaitenby, William C.	Huntington	Commutes
Galas, Benedict F.	Monson	Comm. Circle R-5
Gaylord, Richard E.	South Hadley	Greenough 104
Gerstein, Edward L.	Springfield	Butterfield
Gilman, Paul B.	Groton	Butterfield 115
Glagovsky, Mynda J.	Haverhill	Lewis
Gleason, Richard R.	E. Lebanon, Maine	24 Nutting Ave.
Goldman, Philip	Brighton	Butterfield 213
Gordon, Herman J.	Ware	Butterfield 112
Gorman, Cuthbert P., Jr.	Westfield	Butterfield 117
Gould, Bradford G.	Holden	Butterfield
Governor, Albert C.	Roslindale	Butterfield 210
Graham, Albert K.	Methuen	Butterfield 111
Gray, Donald M.	Woods Hole	Butterfield 115
Grayson, Jean	Norwalk, Conn.	Lewis
Green, John C.	Amherst	Commutes
Green, Justin E.	Mattapan	Butterfield
Greenberg, James M.	Brookline	Butterfield 213
Greene, Russell A.	Medfield	Butterfield

Grimley, Robert T.	North Attleboro	Butterfield 205
Griswold, Marieta J.	Walpole	Lewis
Hafter, Phyllis P.	Lynn	Lewis
Hall, John S.	Westfield	Butterfield
Hamilton, Ernest S.	Greenfield	Butterfield 110
Hammond, Philip C.	North Quincy	Butterfield 404
Hansen, Betty E.	West Springfield	Lewis
Harris, Jeannette D.	East Deerfield	Lewis 417
Hart, John O.	Wellesley Hills	Butterfield 114
Hatch, Harold P.	Amherst	Commutes
Heins, Kenneth W.	Fitchburg	Butterfield 323
Hempel, David	Orange	Butterfield 407
Henneberry, Thomas J.	Medway	Butterfield
Herlihy, Jeremiah T.	Holyoke	Butterfield 203
Hermes, Edmund D.	West Springfield	Butterfield 130
Hickman, Phyllis J.	Easthampton	Lewis
Higgins, David L.	Taunton	Butterfield
Hmieleski, Henry L.	Turners Falls	Butterfield
Hodgess, Albert J.	Maynard	Butterfield 314
Hoffman, Nancy F.	Westboro	Lewis 422
Hooker, Carol E.	Raynham	Lewis
Hooper, Wilford H.	Wellesley	Butterfield 102
Hopkins, Harry E.	North Eastham	Butterfield 323
Houle, Nancy R.	Shrewsbury	Lewis 415
Howe, F. Lucile	Springfield	Lewis
Howland, Richard S.	Southampton	Butterfield 308
Hunter, Alan F.	Holyoke	Butterfield 402
Iampietro, Albert L.	Middleboro	Commonwealth Circle S-16
Irwin, Dudley F.	Amherst	Commutes
Isenberg, Eugene M.	Chelsea	Butterfield 317
Ives, William L.	Salem	Butterfield 103
Jackson, George B.	Belchertown	Commutes
Jacobs, Lillian A.	Greenfield	Lewis 311
Jacques, Donald C.	Worcester	Butterfield 111
Jessop, Howard A.	South Hadley Falls	Butterfield 312
Jodrey, Nancy A.	Southbridge	Lewis 218
Johnson, Ruth M.	North Adams	Lewis
Johnston, Robert A.	Worcester	Butterfield
Jones, Phillips R.	Brooklyn, N. Y.	Butterfield
Joslin, Edna L.	Southbridge	Lewis 104
Judelson, Helaine R.	Holyoke.	Lewis 103
Karas, Lillian	Mattapan	Lewis
Katz, Seymour	Malden	Butterfield
Kaufman, Myra F.	Lynn	Lewis
Kearns, Mary P.	Fall River	Lewis
Kendall, Merle L.	South Hadley	Lewis
Kendrow, Carolyn H.	Gill	Lewis
Kennedy, Leonard F.	Amherst	Commutes
Kenney, Walter T.	Arlington	Butterfield
Kiddy, Charles A.	Roxbury	Butterfield
Kimball, Jane L.	Belchertown	Commutes
King, Malcolm W.	Florence	Commutes
Knapp, Suzanne C.	Springfield	Lewis
Kosberg, Claire F.	North Adams	Lewis
Kotula, Anthony W.	Holyoke	Butterfield 216
Kowinski, John F.	Florence	Commutes
Kranich, Barbara A.	Worcester	Lewis
Kuhns, Martha Gail	Mill River	Lewis 118
Kunefsky, Arnold J.	Haverhill	Butterfield

Kwasnik, Nellie K.	Monson	Lewis 209
Labarre, Joan A.	Southboro	Lewis
Lahey, Frederick P.	New Rochelle, N. Y.	Butterfield
Lamb, Marjorie J.	Wilson, Conn.	Lewis 101
Lampert, Mildred R.	Peabody	Lewis
Lampi, Rauno A.	East Templeton	Butterfield 129
Landstrom, Ruth E.	Heath	Lewis 302
Laperle, Constance D.	Woonsocket, R. I.	Lewis 404
Lappin, Barbara L.	Roxbury	Lewis 408
Laurin, Constance E.	Holyoke	Lewis
Law, Robert D.	Melrose	Butterfield 316
Lawlor, Regina K.	North Brookfield	Lewis
Lebowitz, Wallace B.	Lawrence	Butterfield 228
Leccese, Vincent C.	Malden	Butterfield 304
Lee, Norman H.	South Weymouth	Butterfield 318
Leidt, William E., Jr.	Scarsdale, N. Y.	Butterfield 309
Less, William C.	North Adams	Butterfield
Levine, Elaine C.	Roxbury	Lewis
Lewis, Barbara S.	Newton Centre	Lewis
Libucha, Chester C.	Springfield	Butterfield 230
Lindsay, Jean A.	Brockton	Lewis 309
Liner, Rachel L.	Fall River	Lewis
Lipnick, Dorothy B.	Webster	Lewis
Litman, Lawrence	Salem	Butterfield
Love, Robert W.	Auburn	Butterfield 320
Luther, Janice V.	Springfield	Lewis
Lyons, Charles R.	West Springfield	Chadbourne 104

MacLachlan, Janice	Melrose	321 Lewis Hall
Malnati, Antonio J.	Ashley Falls	461 Butterfield
Mangum, Andrew N.	Holyoke	Butterfield
Mann, David B.	Hanson	Butterfield
Mann, June L.	Turners Falls	Commutes
Marsh, Evelyn	Jefferson	Lewis Hall
Martin, Carol E.	Cheshire	Lewis Hall
Martin, Henry G.	Turners Falls	Poultry Plant
Martin, John C.	Lee	Butterfield
Martin, Marilyn	Lunenburg	Lewis Hall
Marulli, Albert S.	Holyoke	Butterfield
Marvel, Ruth M.	Millers Falls	Montague Rd., No. Amh.
Mattuski, Joseph C.	Northampton	Commutes
McAvoy, Beverly Mae	Wendell	214 Lewis Hall
McCann, Patricia K.	North Easton	320 Lewis Hall
McCauley, Edward F.	Wollaston	221 Butterfield
McDonough, Agnes J.	Dorchester	222 Lewis Hall
McEachron, Alice C.	Pittsfield	Lewis Hall
McElroy, Jane	Orange	Lewis Hall
McKinstry, Alfred	Chicopee Falls	Butterfield
Merrick, Robert W.	Oxford	229 Butterfield
Meyer, Frederick W.	South Hadley	203 Butterfield
Micka, Christine	Easthampton	Stockbridge House
Miles, David G.	Pittsfield	Butterfield
Miller, Bernard J.	Northampton	312 Greenough
Milne, Brian F.	Shelburne Falls	329 Butterfield
Minehan, Mary Jean	West Groton	Lewis Hall
Moldaw, Lillian R.	Brookline	Lewis Hall
Monroe, Alan T.	Dover	Butterfield
Moriarty, Anne J.	Holyoke	Commutes
Moriarty, Roland E.	Holyoke	Butterfield
Mulvaney, Robert W.	Ware	207 Greenough
Murphy, Rena L.	Adams	410 Lewis Hall
Murray, Robert W.	Holyoke	128 Butterfield

Nadison, George	Lawrence	423 Chadbourne
Newman, Norman N.	Haverhill	Butterfield
Nichols, John T.	Middleboro	402 Butterfield
Nickerson, Harold O.	East Harwich	225 Butterfield
Noiseux, Christine M.	Holyoke	Lewis Hall
Norskey, Alexander P.	Gardner	Butterfield
Nyren, Barbara E.	Newton Highlands	Lewis Hall
Nystrom, Charles W.	South Easton	404 Butterfield

O'Connell, Francis J.	Northampton	Commutes
O'Connell, James J.	Northampton	Commutes
O'Connor, Geraldine M.	Holyoke	Commutes
O'Connor, John A.	Three Rivers	Commutes
O'Connor, Robert L.	South Hadley	Butterfield
O'Donnell, Alice M.	Holyoke	Commutes
O'Keefe, Frank R., Jr.	Peabody	Butterfield
Osborn, David M.	Auburndale	Butterfield

Palk, Natalie A.	Gloucester	412 Lewis Hall
Palmer, Aldrick A.	Westfield	Butterfield
Parsons, Priscilla A.	Pittsfield	420 Lewis Hall
Patterson, John J.	Winchester	327 Butterfield
Paulding, George C.	South Carver	328 Butterfield
Payne, Malcolm T.	Long Island, N. Y.	407 Butterfield
Peck, Cathryn E.	Shelburne Falls	112 Lewis Hall
Pecukonis, Paul, Jr.	Lynn	221 Butterfield
Perniola, Irene M.	Norwood	Lewis Hall
Perry, Patricia M.	Ashburnham	Lewis Hall
Petroski, Constance E.	Amherst	Commutes
Popkin, Gerald H.	Brighton	423 Chadbourne
Porrovecchio, Lois M.	Charlemont	Lewis Hall
Powers, Mark E.	South Deerfield	Commutes
Preble, Elizaeth B.	Jamaica Plain	Lewis Hall
Price, Edna M.	Worcester	Lewis Hall
Purrington, Edward C., Jr.	Holyoke	Butterfield
Putnam, Joseph L.	Orleans	1156 No. Pleasant St.
Putnam, Lawrence H.	Everett	307 Butterfield

Quimby, Donald H.	Longmeadow	Butterfield

Rafferty, Sylvia L.	Holyoke	Commutes
Rapoza, Jeanne M.	New Bedford	Lewis Hall
Ratner, William Allan	Cambridge	R-8 Commonwealth Circle
Reed, John G.	West Tisbury	117 Butterfield
Rescia, Richard R.	North Agawam	306 Butterfield
Rice, Evelyn A.	Millis	Lewis Hall
Rice, Marjorie E.	Belmont	The Adams House
Richters, Robert L.	Amherst	Drake Hotel, Amherst
Ring, John H.	Arlington	218 Butterfield
Ringuette, Bette V.	Amherst	Commutes
Roberts, Alan D.	Plymouth	114 Butterfield
Robery, Gilbert P.	West Bridgewater	207 Butterfield
Robinson, James C.	Pittsfield	Butterfield
Rosenbloom, Sally R.	Holyoke	Commutes
Rossman, Robert M.	Brookline	214 Butterfield
Ross, Priscilla	Ipswich	Lewis Hall
Roth, Philip G.	Turners Falls	312 Butterfield
Rubino, Margherita	Agawam	105 Lewis Hall

Sachse, Marjorie M.	Clinton	415 Lewis Hall
Sanderson, Pauline M.	Shirley	Lewis Hall
Saunders, Richard L.	Beverly	Butterfield
Savard, William G.	Springfield	219 Butterfield
Sawdey, Jeanne E.	Wellesley Hills	312 Lewis Hall

SCHOFIELD, ARTHUR I.	Cochituate	217 Butterfield
SCHORER, RUTH M.	Northampton	Lewis Hall
SCHUMACHER, GLADYS H.	Pittsfield	215 Lewis Hall
SCOTT, JOHN J., JR.	Framingham	223 Butterfield
SEARS, RICHARD W.	Amherst	Commutes
SHAKER, BURTON A.	Springfield	Butterfield
SHAW, SYLVIA F.	Peabody	Lewis Hall
SHAYLOR, CLAIRE I.	Agawam	Lewis Hall
SHEA, MARY C.	Dalton	102 Lewis Hall
SHEARER, LAWRENCE E., JR.	Colrain	307 Butterfield
SHEPPARD, RUTHIE O.	Needham	419 Lewis Hall
SHERTER, BARBARA M.	Mattapan	Lewis Hall
SHERWOOD, ESTHER MAE	Huntington	Lewis Hall
SHEVIS, JAMES M.	Gardner	129 Butterfield
SHMULSKY, SOPHIA	Sheffield	Lewis Hall
SHUFELT, FRANK L.	Walpole	406 Butterfield
SHUMAN, ALAN M.	Chelsea	326 Butterfield
SILVER, ROBERT M.	Brookline	214 Butterfield
SKIPTON, ADELA L.	Springfield	Lewis Hall
SMILEY, EDWARD R.	Greenfield	306 Butterfield Hall
SMITH, ALLAN R.	Amherst	26 Spring St., Amherst
SMITH, CARRIE F.	East Taunton	Lewis Hall
SMITH, EDWARD T.	Easthampton	Butterfield
SMITH, JANET L.	South Hadley Falls	218 Lewis Hall
SORROW, STEPHEN J.	Wrentham	207 Butterfield
SPEED, DIANNE B.	Plymouth, N. H.	206 Lewis Hall
SPENCER, STANLEY M.	Olean, N. Y.	382 No. Pleas. St., Amherst
STAPLETON, JAMES J.	Holyoke	Butterfield
STARKWEATHER, WILLIAM C.	Auburndale	224 Butterfield
STEADMAN, WILFRED A.	Brookfield	209 Butterfield
STEBBINS, DONALD E.	Monson	Commutes
STEDMAN, RALPH S., JR.	Wilbraham	330 Butterfield
STEELE, EUGENE K.	Pittsfield	Butterfield
STEGNER, FRANCES L.	Brimfield	Lewis Hall
STERN, JOAN K.	Newton Centre	314 Lewis Hall
STOCKWELL, ANN	Sutton	417 Lewis Hall
STOCKWELL, ERVIN	Sharon	210 Greenough
STOWE, DONALD R.	Concord	Butterfield
STRATTON, PATRICIA A.	Northampton	207 Lewis Hall
STREETER, NANCY A.	Orange	Lewis Hall
SULLIVAN, MARJORIE A.	Pittsfield	Lewis Hall
SUTHERLAND, KENNETH I.	Shelburne Falls	Commutes
SWEENEY, ROBERT L.	Adams	210 Butterfield

TARSHUS, RICHARD F.	Northampton	Butterfield
TAVEL, DAVID Z.	Dorchester	313 Butterfield
TAYLOR, CHARLES F.	Randolph	306 Butterfield
TAYLOR, DONALD	Revere	303 Butterfield
THACHER, WILLIAM F., JR.	South Dennis	208 Butterfield
THOMAS, RICHARD L.	Hanson	211 Butterfield
THOMAS, VERNON T.	Amherst	Commutes
THRASHER, DOREEN P.	New Bedford	Lewis Hall
TONER, RUTHE F.	Nantucket	Lewis Hall
TRIPP, JOSEPH E.	Dennis	224 Butterfield
TROMBLA, ALAN J.	Springfield	302 Butterfield
TURCO, JAMES J.	Walpole	324 Butterfield
TURCOTTE, ALPHONSE C.	Granby	311 Butterfield

VANDER POL, ELIZABETH J.	Fairhaven	Lewis Hall
VARA, RICHARD H.	Wellesley Hills	Butterfield
VARLEY, ROBERT M.	Acushnet	301 Butterfield
VIEWEG, BERTHA S.	Fitchburg	305 Lewis Hall

Vigneau, Robert E.	Florence	Commutes
Vincent, Phyllis J.	Fitchburg	Lewis Hall
Walczak, Carl W.	South Deerfield	Commutes
Waldman, Beryl F.	Brighton	Butterfield
Walsh, Patricia A.	Whitinsville	304 Lewis Hall
Warren, James J., Jr.	North Brookfield	Butterfield
Warren, Robert B.	Weymouth	227 Butterfield
Waugh, Prudence	Arlington, Va.	Lewis Hall
Weisse, Frank J.	Springfield	311 Butterfield
Welcome, Kenneth R.	Greenfield	304 Butterfield
Wendler, Henry C.	Allston	226 Butterfield
Wezniak, George R.	Belchertown	Commutes
Whipple, Marilyn	Pittsfield	Lewis Hall
Whitaker, Francis M.	North Quincy	301 Butterfield
White, Edward G.	North Quincy	221 Butterfield
White, Gwendolyn	Franklin	Lewis Hall
White, Jacqueline	Waltham	Lewis Hall
White, Rodney L.	Lynn	321 Butterfield
Whitney, Constance B.	Maynard	Lewis Hall
Whitney, Earl S.	Sharon	319 Butterfield
Whitney, George H.	Marblehead	308 Butterfield
Willis, Raymond C.	Charlemont	206 Butterfield
Wisniowski, Edward R.	Springfield	Butterfield
Wogan, R. Bruce	Chestnut Hill	116 Butterfield
Wolf, Melvin H.	Dorchester	303 Butterfield
Wolkowicz, Helena T.	New Bedford	Lewis Hall
Wolper, Ann G.	Brookline	Lewis Hall
Wood, Jean A.	Huntington	Commutes
Wright, Francis S.	Pittsfield	Butterfield
Wysocki, Francis H.	Amherst	Commutes
Yergatian, Charles	Franklin	126 Butterfield
Young, David L.	SouthYarmouth	314 Chadbourne
Young, Edward W.	Northampton	Commutes
Young, Willard H., Jr.	Belchertown	Commutes
Zatyrka, Arlene A.	Greenfield	106 Lewis Hall
Zehner, Joan P.	Springfield	Lewis Hall

SPECIAL STUDENTS
FIRST SEMESTER 1947-48

Buck, Mrs. Helen B.		Kappa Kappa Gamma 314 Lincoln Ave .
Eisenmenger, Robert W.	Amherst	Theta Chi, U. of M.
Fitzpatrick, Mary A.	Pekin, Ill.	Wendell Rd., Shutesbury
Guernelli, Maris Julia	Rio de Janeiro, Brazil	14 Allen St.
Hawley, Janice E.	Amherst	Commutes
Stebbins, Mrs. Mary F.	Deerfield	Old Deerfield
Waskiewicz, Leon E.	Amherst	Commutes

STUDENT REGISTRATION AT FORT DEVENS

1948-1949

Aaronian, Edward	Cambridge
Abbott, Alvah W., II	Melrose
Abbott, Frederick W.	Boston
Abidian, John V.	Arlington
Abraham, Joseph W.	West Springfield
Abrahams, Walter H.	Holyoke
Abrahamsen, Frederick H.	South Weymouth
Adair, Clark D.	Roslindale
Adams, Albert C.	Medford
Adams, James	Dorchester
Adams, James A., Jr.	Brimfield
Adams, Kazia	Harvardevens
Adler, Burton S.	Roxbury
Adler, Robert	Belmont
Adler, Simpson B.	Holden
Ahearn, Aloysius J.	Avon
Ahern, Thomas J., Jr.	Lynn
Albert, Theodore W. B.	New Bedford
Albert, Wendell E.	Braintree
Alberts, Warren J.	Newton Center
Aldrich, William L., Jr.	Uxbridge
Alessandrini, Leo J.	Everett
Alex, Daniel G.	Cambridge
Aliberte, Enrico E.	Everett
Aliengena, Harry E.	Monson
Allen, Bertram W., Jr.	Harvardevens
Allen, Erwin M.	Roxbury
Allen, Frederick E.	Springfield
Alletson, Glenn H.	Springfield
Almoyan, Sarkis	Lawrence
Alter, Seymour M.	Dorchester
Ameen, Samuel J.	Lawrence
Amero, Ralph H.	Harvardevens
Anastasia, Peter F.	Everett
Andelman, Melvin	Cambridge
Anderson, Edward E.	New Bedford
Anderson, Robert L.	Providence, R. I.
Andrea, Christo	Southbridge
Andrews, Thomas S.	Westfield
Anestis, John J.	Hyannis
Angers, Pierre, II	Springfield
Ankeles, Morris J.	Peabody
Ankers, George J.	Holyoke
Anzuoni, George S.	Revere
Armstrong, Paul P.	Salem
Aronson, Marvin	Dorchester
Arsenault, Raymond J.	Leominster
Arthur, Richard F.	Walpole
Ash	Quincy
Askenazy, Harold	Malden
Askin, Donald M.	Framingham

Aslanian, Asaddor	Lowell
Atkins, Jaspard H.	Dorchester
Atlas, Elliott J.	Winthrop
Auclair, George E.	Somerset
Audette, Robert J.	West Concord
Avedikian, Charles	Chelsea
Awad, Philip P.	Ashland
Aykanian, Ardashus A.	Indian Orchard
Aziz, John J.	Gardner
Babbin, Donald L.	Lynn
Bacon, Francis W., Jr.	Pittsfield
Bacon, Henry S.	Brookline
Baglione, Vincent A.	Roslindale
Bailey, Robert W.	Tyngsboro
Bailey, Theodore N.	Boston
Bailey, Thomas L., Jr.	Malden
Bain, Stewart A.	West Roxbury
Baird, James	Roslindale
Baker, Harry S.	Westfield
Baldwin, Lewis K.	Medford
Ballan, Emil	Worcester
Ballard, Thomas J., Jr.	Jamaica Plain
Ballard, Welton R.	Lynn
Bambrick, Russell F.	Milton
Bamford, Allan J.	North Andover
Bamford, Charles F.	Methuen
Bandini, Francis H.	Medford
Baratta, Francis I.	Watertown
Barkley, Richard F.	Quincy
Barnes, Edward W.	Watertown
Barnes, Russell T.	Westfield
Barnicle, Edward J.	Natick
Barr, Donald F.	Ayer
Barrett, Francis X.	Lowell
Barrieau, Rene E. J.	New Bedford.
Barron, Stanley	Brighton
Barron, William S.	Dorchester
Barrows, Frederick W.	Lowell
Barry, John R.	Medford
Barry, Richard J.	Monson
Bartlett, Edward P.	West Sprinfield
Bartlett, Robert K.	Marblehead
Bassett, Wilbur E.	Marblehead
Batchelder, Earle C.	Braintree
Bates, Robert C.	Winchester
Battersby, Edward D.	Holyoke
Bayer, David S.	Webster
Bazer, Alvan T.	Revere
Bazer, Arthur	Revere
Bean, Robert	Fitchburg
Beauchene, Kenneth H.	Harvardevens
Beaulieu, Robert M.	Fall River
Beauregard, Edward C.	Willimansett
Beauvais, Richard A.	Fitchburg
Belgard, Alan H.	Dorchester
Bell, Albert J.	Revere
Bell, Roderick G.	Attleboro
Bennett, Donald J.	Feeding Hills
Bennett, Paul E.	West Medford
Bennett, Robert A.	Great Barrington
Bennett, Vincent B.	West Medford
Berard, William F.	Waltham

Berg, Irving	Chelsea
Bergen, John J.	Harvardevens
Berger, Paul J.	Roxbury
Bergeron, Albert J.	Wollaston
Berglund, Gunnar R.	Worcester
Berkowitz, Robert L.	Boston
Berman, Albert S.	Mattapan
Bernard, George J.	Lowell
Bernier, Roland G.	Northampton
Bernstein, Lawrence M.	Springfield
Berrigan, James E., Jr.	Melrose
Berry, William F.	Roxbury
Beswick, Alfred G.	Natick
Bibbins, Richard J.	Worcester
Biegel, Howard A.	Brookline
Biernacki, John A.	Worcester
Billings, Herbert A.	Weymouth
Billington, Robert E.	New Bedford
Birch, Wallace E.	Great Barrington
Blanchard, Richard A.	Waltham
Bleyle, Merrill	Melrose
Bliss, Donald W.	Winthrop
Bloch, Saul K.	Springfield
Block, Charles	Winthrop
Blomerth, Clarence R.	Malden
Bluhm, Aaron L.	Dorchester
Bodor, Stephen J., Jr.	Lynn
Boisselle, Robert E.	Haverhill
Bond, Robert S.	Belmont
Bonin, Fred	Roxbury
Bonnallie, Chester A., Jr.	Fitchburg
Bonanno, Alfred L.	Lawrence
Boraski, Nicholas	Harvardevens
Boris, Albert J.	Worcester
Borkowski, Alfred N.	Gardner
Bornheim, George H.	South Hingham
Borsetti, Raymond L.	Beverly
Borvick, Jacob	Dorchester
Boski, Alfred M.	Northampton
Botelho, Jeremiah J.	Cambridge
Botsch, Francis W.	Andover
Boucher, Henry G., Jr.	Turners Falls
Boukis, Michael A.	Haverhill
Bourdages, Romi J.	Spencer
Bova, Maurice A.	Lawrence
Bowens, Bruce T.	Springfield
Bowler, Richard, Jr.	Marblehead
Boyd, Harold W., Jr.	East Braintree
Boylan, Daniel J., Jr.	Winthrop
Boylen, George W., Jr.	Wilmington
Boyles, Stephen M.	Westport
Boynton, Frederick J.	Fall River
Boynton, Richard L.	Brookfield
Brackett, Charles P.	South Hamilton
Bradbury, John E.	Fall River
Bradley, Kerin	Lawrence
Bradley, William S.	Taunton
Breen, John J.	West Roxbury
Brennan, Edward J.	North Attleboro
Brennan, Robert A.	Whitman
Brenner, Frank	Revere
Brent, Robert E.	Quincy

Brewer, Howard E.	Eastham
Brewer, Thomas J.	Plymouth
Brickett, John A.	West Newton
Bridgman, Donald H.	Pittsfield
Brigham, Robert S.	Fitchburg
Brink, John V.	Worcester
Brodeur, Paul W.	Chicopee Falls
Brogan, Francis D.	Hyannisport
Bronstein, Sidney S.	Chelsea
Broude, Albert R.	Brookline
Brown, Albert E.	Dorchester
Brown, Albert F.	Maynard
Brown, Calvin C.	Georgetown
Brown, David L.	Boston
Brown, Everett W., Jr.	Shrewsbury
Brown, Francis S.	Wollaston
Brown, William S.	Lawrence
Bruni, Pasquale A.	Pittsfield
Bryant, Henry M.	Springfield
Bryant, Roscoe W., Jr.	Boston
Bryson, William M.	Weymouth
Buba, Felix E.	Harvardevens
Bucca, Dominic J.	Jefferson
Bucci, George A.	Belmont
Buck, Allan C.	Fitchburg
Buckley, John J.	Dorchester
Buckley, Robert D.	Boston
Budd, Arthur E.	Granby
Budd, Gerald G.	Mattapan
Bullock, Edward K.	Shrewsbury
Burdett, Bruce E.	West Chatham
Burgeson, William C.	Springfield
Burke, Earle, Jr.	Arlington
Burke, Edmund P.	Lynn
Burkin, Max	Chelsea
Burnap, Charles C.	Lunenburg
Burnham, Winslow L.	South Essex
Burnell, Robert E.	Brockton
Burns, David F.	Cambridge
Burns, David S., Jr.	Andover
Burns, Kenneth R.	Canton
Burns, Robert L.	Winthrop
Burns, William	Arlington
Bushee, Herbert E.	Athol
Butler, Paul	Bolton
Buttaro, Mario J.	Somerville
Bynoe, John G.	Boston
Byrne, Eugene M.	Framingham
Byrne, John F.	Northampton
Byrne, Robert J.	Natick

Caci, Stephen F.	Quincy
Cahill, Vincent J.	Everett
Cahill, Walter P., Jr.	Livingston, N. J.
Cairns, John D.	New Bedford
Callahan, James F.	Lowell
Callahan, John J., Jr.	Framingham
Callahan, Joseph D.	Medford
Callahan, Walter L.	Arlington
Callichy, Theodore R.	Beverly
Camara, Edward	Lowell
Campbell, Joseph A.	Belmont

Campbell, Wallace S.	Salem
Campedelli, Frank L.	Roxbury
Canavan, Joseph F.	Jamaica Plain
Cannella, James J.	Maynard
Caouette, Raymond	Lawrence
Capodilupo, Joseph C.	Brookline
Caramello, James M.	North Plymouth
Carbaliotis, Nicholas A.	Lynn
Cardell, Robert J.	Pittsfield
Carlson, Frederick A.	Springfield
Carmichael, James T.	Roslindale
Carpenter, David F.	Greenwood
Carpenter, Earl S.	Harvardevens
Carpenter, Robert R.	Southbridge
Carr, Alton F.	Belmont
Carr, Charles W.	Agawam
Carr, James A.	Dorchester
Carrington, William A.	Fitchburg
Carroll, William J.	Arlington
Carruthers, Robert C.	Harvardevens
Car-Skaden, Richard	Concord
Casey, Francis G.	Chelsea
Casey, Paul J.	Milton
Cashman, Edward F.	Dorchester
Cassani, James G., Jr.	Medford
Cassidy, William J.	West Lynn
Castraberti, Arthur O.	Medford
Caswell, Edwin B.	Middleboro
Caton, Edward M.	Foxboro
Cencak, Frank M.	East Douglas
Centracchio, John C.	East Boston
Cerier, William I.	Fitchburg
Chaet, Alfred B.	Mattapan
Chambers, Edward A.	Harvardevens
Chandler, Emerson H.	Auburndale
Chapdelaine, George E.	West Warren
Chapski, Edward J.	Watertown
Charm, Stanley E.	Brighton
Chetham, John H.	Somerville
Chevalier, Louis M.	Ayer
Chinian, Jack	Watertown
Chochrek, Walter S.	Cambridge
Chotkowski, Myron A.	Chelsea
Christensen, William F.	Fitchburg
Ciampa, William S.	Melrose
Cianciulli, Salvatore L.	East Weymouth
Ciarfella, Francis G.	Malden
Cieboter, Frank J.	Chicopee
Ciesluk, Thaddeus J.	Harvardevens
Ciosek, Edward W.	Chicopee
Circulas, Edward	Dorchester
Clapp, John B., Jr.	Harvardevens
Clapp, Richard N.	Greenfield
Clark, Arthur F.	Dedham
Clark, Gerald K.	Clinton
Cleary, John F.	Boston
Cleverly, John F.	Dorchester
Clifford, Daniel F.	Worcester
Cloonen, F. Blake, Jr.	Salem
Cloutier, Charles W.	Brockton
Clune, James P.	Dorchester
Cobb, Preble	Cambridge

Cohan, Lloyd S.	Everett
Cohen, Melvin	Springfield
Cohen, Morton N.	Revere
Cohen, Samuel	Roxbury
Cole, William R.	Winchester
Collins, Bradfield J.	Medford
Collins, James L.	Worcester
Collins, William M.	Watertown
Colton, William R.	Athol
Comeau, Louis E.	Waltham
Conary, Robert M.	Medford
Condon, Mason J.	Everett
Conley, Robert M.	Dorchester
Conlin, Charles B.	Brookline
Conlon, Paul J.	Harvardevens
Connerney, Francis J.	Brighton
Connor, Walker F.	South Hadley
Connors, Donald F.	Worcester
Connors, John V., Jr.	Milton
Connors, William R.	Everett
Conragan, Aram K., Jr.	Arlington
Conrardy, Walter P.	Blackstone
Conrod, Calvin D.	Brookline
Conway, Robert W.	Medford
Cook, Ernest W.	Beverly
Cook, James A., Jr.	Marblehead
Cook, Robert G.	North Wilbraham
Coolidge, John, Jr.	Hudson
Coparanis, Byron A.	Haverhill
Coppa, Raymond R.	New Bedford
Coras, Arthur P.	Boston
Corcoran, William J.	Cambridge
Corey, George C.	Concord
Corrigan, John G.	Malden
Corsaro, Vincent A.	Malden
Costa, William	Wareham
Costantino, Henry A.	East Boston
Costanza, Eugene A.	Chelsea
Coulouriotes, Alexander	Somerville
Coulson, Erwin R.	Springfield
Coulthard, Peter A.	Southbridge
Courtines, Alfred	Cotuit
Couture, James E.	Greenfield
Cowie, Bruce S.	Great Barrington
Cox, Robert A.	Harvard
Cox, Walter J.	Readville
Craft, J. Edward	Worcester
Craigue, Robert J.	Wollaston
Crawshaw, Henry L.	Hingham
Credit, Daniel G.	Revere
Creed, Edward F.	Beverly
Creeden, John B.	Medford
Creeden, John V.	Mansfield
Creeron, Richard F.	Worcester
Cretarolo, Aldo	Haverhill
Crimmin, William F.	Spencer
Crocker, Hobart N., Jr.	Cambridge
Cronin, Richard	Ipswich
Crosby, Bradley S.	Rockland
Cross, Jay R.	East Pembroke
Crowell, Craig L.	Harvardevens
Crowell, Schuyler T.	Harvardevens

Crowley, Peter C.	Watertown
Cudworth, George E.	Harvardevens
Cullen, Alexander F., Jr.	Pittsfield
Cullen, Irving	Dorchester
Cullin, Philip M.	Lynn
Cuneo, William J.	Reading
Cunningham, Richard M.	Gardner
Cunningham, Terrence E.	Winthrop
Cunningham, William J.	North Andover
Curran, Warren C.	West Roxbury
Curtin, James P.	Northampton
Curtis, Harold L.	Haverhill
Curtis, Jack T.	Everett
Curtis, Reginald W.	Everett
Cutler, Carl I.	Malden

D'Abre, Edgar R.	Brookline
Dadoly, Angelo	Dracut
Dahlstrom, Robert G.	Weymouth
Daisy, Walter E., Jr.	Brookline
Dalton, Francis M.	Lawrence
Damiano, Michael C.	Watertown
Daniels, Howard E.	West Springfield
Daniels, Robert E.	Roxbury
Danos, Leonard C.	Springfield
D'Argento, Frank R.	Waltham
D'Arrigo, Peter A.	Concord
Dauyotas, Vito P.	Cambridge
Daviau, George E.	South Hadley
David, Marshall H.	Somerville
Davidow, Newton S.	Roxbury
Davis, Kenneth F.	Lee
Davis, Spencer L.	Brighton
Davis, Theodore E.	Methuen
Davison, Charles H. B.	Winthrop
Day, Philip S.	Sterling
Dayton, John V.	Pittsfield
DeAgazio, Anthony R.	Watertown
Deamon, Samuel M.	Medford
Deane, William N.	Whitinsville
Decareau, Robert V.	Arlington
DeConto, Roland F.	West Medford
DeFusco, Ernest	Lawrence
Degnan, John P.	Watertown
Deiana, Edward J.	Hopkinton
Delaney, William A., Jr.	Lynn
Delay, Philip H.	Gardner
Dello Russo, Richard W.	Medford
Demarco, Michael	Swansea
Demeo, Raymond J.	Waltham
Demoranville, Irving E.	New Bedford
Dempster, Burton W.	Roslindale
Demurjian, Ara	Arlington
Denisevich, Nicholas	Graniteville
Densman, Anthony J.	Brockton
Denver, Frank A.	Lowell
DeNuccio, Guy	Everett
Denuzzio, Albert S.	Lawrence
Depuy, Francis A.	Harvardevens
De Salvo, John N.	Belmont
Desmond, Francis T.	Everett
Deso, Charles S.	Westboro
Desrosiers, Marcel L.	Waltham

Detommaso, Olindo E.	East Weymouth
Dever, Frank J., Jr.	Springfield
Devlin, James S.	Harvardevens
Dextrader, Aime P.	Ware
Diamond, Wilbur H.	Melrose
DiCesare, Eugene	Leominster
Di Chiaro, Philip A.	Dorchester
Dick, Raymond G.	Worcester
Dickson, Henry S.	Concord
DiGrappa, Fiorentino J.	Maynard
Dillman, Joseph F., Jr.	Worcester
Dillon, Robert F.	Chelmsford
Dimilla, Salvatore J.	Somerville
Dineley, Edwin H.	Beverly
Dinoia, Dominic J.	Springfield
Dioli, Arthur L.	West Stockbridge
DiPietro, Francis C.	Cambridge
DiVenuti, Arthur L.	Revere
Dixon, J. Brice	West Springfield
Dmytryk, Edward J.	Northampton
Doane, Jay T.	Marlboro
Dobkin, Melvin E.	Dorchester
Dodwell, Thomas G.	Chelsea
Doherty, Gerald J.	Brockton
Dombrowski, Joseph A.	Allston
Donegan, John F.	Roslindale
Donigian, Albert H.	Lynn
Donkin, Thomas	East Braintree
Donovan, Gerald J.	Somerville
Donovan, John J.	Pittsfield
Donovan, Richard H.	West Medford
Donovan, Vincent P.	Pittsfield
Doran, Edward W.	Somerville
Doucette, Clarence E.	Ayer
Dow, Burton R.	Harvardevens
Dowd, Donald J.	Springfield
Downes, Harold W.	Harvardevens
Downing, Wilbur F.	Harvardevens
Downs, Thomas B.	Willimansett
Doyle, George H.	New Bedford
Drazek, Teofil A.	Springfield
Driscoll, Robert E.	Melrose
Driscoll, Thomas L.	Waltham
Driscoll, William E.	Somerville
Duarte, John A.	Mansfield
Dubinsky, Bernard	Roxbury
Dubreuil, Valmore A.	New Bedford
Dugan, Francis J.	Lowell
Duffy, James H.	Springfield
Duncan, Alexander B.	Fitchburg
D'Unger, Robert D.	Harvardevens
Dunn, William G.	Lenox
Dunn, William G., Jr.	Weymouth
Dunwoodie, David R.	Fairhaven
Dunton, Robert J.	Brighton
Dussault, Normand R.	Harvardevens
Dyson, Melvin A.	Arlington
Dyszczyk, Frank L.	Everett

Eaton, Richard L.	East Bridgewater
Edgar, Donald L.	Lexington
Edwards, Norbert F.	West Medford

Egel, Leo F.	Lynn
Eger, Raymond H.	Holyoke
Elder, Hugh F.	Harvardevens
Eldridge, Erwin M.	Great Barrington
Eliopoulos, Angelo K.	Salem
Ellis, John G.	Wellesley
Ellis, Robert K.	Rockland
Elwell, James H.	Springfield
Elwood, Charles H., Jr.	Ayer
Emerson, Joseph D.	Auburndale
Emery, Richard A.	Wakefield
Endreson, Endre, Jr.	Newton Highlands
Eng, Albert	Jamaica Plain
Epps, Richard B.	Gloucester
Erard, H. Robert	Springfield
Ermonian, Krikor	Arlington
Estes, Robert E.	Athol
Estey, Allan J., Jr.	Holden
Etzel, Robert W.	Chelmsford
Evans, Malcolm D.	Arlington

Factor, Theodore H.	Roxbury
Fair, Donald F.	Natick
Falco, Ernest F., Jr.	Medford
Farraher, Richard	Watertown
Farrell, Henry E.	Hull
Farrell, William J.	Quincy
Fay, Charles V.	Medford
Fedel, Robert F.	Needham Heights
Fee, Joseph E.	Everett
Feeley, Paul J.	Medford
Feinberg, Solomon	Dorchester
Feinberg, Stanley	Newton Highlands
Feldman, Paul	Pittsfield
Fellows, Henry J.	Hyannis
Ferrante, Joseph F.	Jamaica Plain
Ferguson, Charles W., Jr.	East Braintree
Ferguson, Robert G.	New Bedford
Ficarra, Joseph A.	Everett
Field, Courtland	Marlboro
Field, Daniel D.	Sharon
Filar, Henry J.	Willimansett
Fine, Lawrence J.	South Boston
Finn, Leonard	Worcester
Finkel, Saul	Springfield
Finneran, John M.	Worcester
Fiorello, Edward A.	Medford
Fish, Calvin D.	Arlington
Fitzgerald, David R.	Worcester
Fitzgerald, Paul R.	Spencer
Fitzgerald, Robert D.	Holyoke
Fitzgerald, William J.	Cambridge
Flagg, Tracy I.	Taunton
Flaherty, John J.	Lowell
Flamand, Charles F.	Brookline
Flanagan, Francis J.	Springfield
Flanagan, John J., Jr.	Newton
Fleming, John F.	Lawrence
Fletcher, Donald A., Jr.	Worcester
Florio, Ralph T.	Harvardevens
Flynn, Charles E.	Ayer
Flynn, George H.	Pittsfield

Flynn, Louis E.	Waltham
Foley, Paul M.	Cambridge
Foley, William J.	Greenfield
Folkins, William H., Jr.	Groton
Ford, Kenneth S.	Southbridge
Ford, Laurence B., Jr.	North Quincy
Foritano, Louis J.	Arlington
Forrest, Ralph A.	Harvardevens
Foss, Donald R.	Harvard
Foster, Philip A.	Groton
Fournier, Ralph A.	Holyoke
Fournier, Raymond B.	Fall River
Foust, Bertram E.	Belmont
Fowke, Donald G.	Somerville
Fowler, Robert G.	Needham
Fox, Robert W.	Somerville
Frame, Alexander B., Jr.	Swampscott
Francis, John L.	Marblehead
Franklin, George	Waltham
Fraser, Joseph P.	Stoneham
Fredette, Raymond H.	Ayer
Freed, James A.	Ayer
Freedman, Herbert M.	Roxbury
Freeman, Robert G.	Monson
Fresto, Restituto T.	Brighton
Friedman, Donald W.	Beverly
Friedman, Herbert	Roxbury
Fritz, Edward	Revere
Frodyma, Stanley H.	Holyoke
Frontiera, Frank A.	Lynn
Frydryk, Edmund J.	Three Rivers
Fuller, Walter R., Jr.	Lynn
Fuller, Winfield S.	West Somerville
Fumento, Rocco L.	North Adams
Gadomski, Frank V.	Clinton
Gaffen, Leonard	Dorchester
Gaffny, Gregory J.	Winthrop
Galasso, Alfred P.	Marlboro
Gallagher, James R.	Framingham
Gallagher, Francis J.	Brookline
Gallagher, William H., Jr.	Lowell
Gallop, Herbert B., Jr.	Cambridge
Galusha, Dexter D.	Cheshire
Gannon, William B.	Somerville
Gard, Lawrence E.	Nahant
Gardner, James W.	West Medford
Garten, James W.	Lexington
Gaudy, Anthony F., Jr.	Harvardevens
Gay, Clifford C.	Leicester
Georgian, John J.	Newton
Gerrior, Thomas C.	Quincy
Gerry, Charles J., Jr.	Arlington
Giardina, Joseph M.	Pittsfield
Gibson, William C.	Gloucester
Gigliotti, Andrew F.	North Adams
Gilberg, Sheldon R.	Lynn
Gilbert, Jack B.	Roxbury
Gilbert, Gordon J.	Charlemont
Gilbert, James B.	Adams
Gilfix, Edward L.	Dorchester
Gilligan, George L.	Holyoke

Gillis, Harold S., Jr.	Lexington
Gilman, Kenneth	Ayer
Gilmore, Philip S., Jr.	Brockton
Gingras, Robert A.	Willimansett
Gionet, Joseph E. L.	Shirley
Giordano, Joseph	Watertown
Glassman, Elliot	Mattapan
Gleed, William H.	Haverhill
Gnacek, Walter J.	East Hampton
Gogis, William A.	Stoughton
Golas, Joseph P.	Three Rivers
Goldberg, Frederick D.	Roxbury
Goldberg, Stanley B.	Dorchester
Golden, James R.	Tyngsboro
Goldie, George W., Jr.	Harvardevens
Goldman, Sumner J.	West Newton
Goldstein, Jack	Mattapan
Goldstein, Sydney	North Adams
Goller, Charles M.	Lawrence
Golus, Edwin R.	Lawrence
Goodnow, Judson M.	Princeton
Gordon, Eugene S.	Revere
Gordon, Robert	Springfield
Gorham, John F.	Medford
Gorman, Sidney	Dorchester
Gossett, George	Holyoke
Gould, David S.	Haverhill
Gould, Robert J.	Milton
Grabauskas, Francis T.	Worcester
Grace, Eugene	Harvardevens
Grady, Paul A.	Wollaston
Grant, Irving M.	Quincy
Grant, John M., Jr.	Gardner
Grant, Melvin H.	Springfield
Gray, Leo R.	Roxbury
Greel, Everett A., Jr.	Gloucester
Green, Sidney J.	Revere
Green, Winthrop J.	Winthrop
Greenburg, Paul W.	Mattapan
Greenspan, Norman E.	Greenfield
Greer, Philip W.	Worcester
Gregory, Robert S.	New Bedford
Grenier, John W.	Springfield
Grenier, Marcel J.	Fitchburg
Gretter, Robert B.	Malden
Grey, Edward C.	Chelsea
Griffin, Hugh	East Lynn
Griffin, John H.	Rutland
Griffin, Joseph M.	Medford
Grimes, John L.	Centerville
Grinnell, Clifton R.	Danvers
Gross, Irving J.	Chelsea
Grosso, Frank A.	Pittsfield
Grove, Richard I.	Worcester
Groves, Arthur R.	Adams
Guertin, Robert J.	Springfield
Guilbault, Robert O.	Blackstone
Gruber, Joseph	Roxbury
Guild, Donald H.	Ashland
Gullion, Bruce S.	Melrose
Gustus, William C.	Charlestown

Guthrie, James J.	North Andover
Guziejk, Hendrick	Lowell
Haberman, Julius A.	New Bedford
Hackett, Owen F., Jr.	Harvardevens
Hadala, Michael	Fall River
Haddad, Raymond A.	Worcester
Haeger, David G.	Ridgefield, Conn.
Haff, Robert M.	Springfield
Haffty, Joseph	Worcester
Halkiotis, Rudolph T.	Haverhill
Hall, John E.	Dalton
Hamilton, Milton R.	East Pepperell
Hampton, Harold B.	Saugus
Hampton, William A., Jr.	Dunstable
Handy, Franklin A.	Athol
Hanglin, Joseph E.	Brookline
Hanlon, Thomas E.	Auburndale
Hannaford, Louis L.	Chelmsford
Hansen, Earl N.	Revere
Hansen, Robert C.	Waltham
Hanson, Philip G.	Lawrence
Hanson, Richard E.	Graniteville
Harcourt, James M.	Jamaica Plain
Harlow, Raymond G.	Shrewsbury
Harmon, John T., Jr.	Harvard
Harrington, Cornelius D., Jr.	Springfield
Harrington, Daniel J.	New Bedford
Harris, Bernard	Chelsea
Harris, Denton B.	Orange
Harris, George A.	Brookline
Hart, Otis E.	North Quincy
Harubin, Kenneth A.	Pittsfield
Haskell, Channing F.	Boston
Haskell, Robert L.	Revere
Haskell, William E., Jr.	Chelsea
Hassett, Elmer W. B.	Petersham
Hastings, Raymon C., Jr.	Leominster
Hayden, David L.	Fitchburg
Hayden, James F.	East Longmeadow
Hayes, John A.	Hyde Park
Hayes, John B.	Greenfield
Haytowitz, Elliot	Everett
Hayward, Lloyd N.	Worcester
Hazen, Harold G., Jr.	Granby
Healey, Albert J.	Lexington
Hearn, Nelson W.	Nantucket
Heffernan, Edward M.	Haverhill
Hegarty, Raymond W.	Springfield
Hein, Malcolm	Haverhill
Henaghan, Patrick F.	Medford
Hendrick, John J., Jr.	Quincy
Hendry, William R.	Chelsea
Herlihy, James F.	Westfield
Hermes, Alfred R.	Roxbury
Hersom, Frank S.	Winchester
Herson, Jack B.	Brighton
Heslin, James P.	Lowell
Hession, Edward F.	Arlington
Hickey, Edward C.	Newton
Higgins, James A.	Pinehurst
Higgins, John J.	Springfield
Higgins, Roland W.	Bedford

Higgins, William F.	Billerica
Hildebrandt, Robert L., Jr.	Longmeadow
Hirons, Frank K., Jr.	Gardner
Hite, Carlton S.	Roxbury
Hoban, Edward W.	Clinton
Hobart, John L.	Littleton
Hoffman, Nels E. H., Jr.	North Attleboro
Hoffman, Samuel	Roxbury
Hogan, William D.	Cambridge
Holden, Duncan	Newbury
Holmberg, Fred C.	Gloucester
Holmes, Herbert A., Jr.	West Bridgewater
Holmes, Ralph M., Jr.	Stoughton
Homewood, Richard H.	Fitchburg
Hook, Robert P.	Worcester
Hopkins, Walter	Springfield
Hopper, Marshall R.	Everett
Horgan, John P.	Rehoboth
Horn, Daniel, Jr.	Adams
Horn, Robert L.	Adams
Horowitz, Samuel	Mattapan
Horton, Daniel J.	Pittsfield
Horton, William A.	Quincy
Horvitz, Manuel	Brighton
Hottinger, Raymond C.	Harvardevens
Howard, Alden H.	Malden
Howard, Nelson G.	Norfolk
Howe, Kenneth B.	Springfield
Howe, Richard G.	Harvardevens
Hubbard, John F.	Cambridge
Hughes, George B.	Somerville
Hull, John R.	Ayer
Hullihen, C. Richard, Jr.	Watertown
Humphrey, Edward A.	Marlboro
Humphry, Peter	Orange
Hunt, Fred E.	Hopkinton
Hunter, David C.	Harvardevens
Hunter, Robert R.	Springfield
Hurld, Daniel P., Jr.	Harvardevens
Hussey, Paul G.	Medford
Hyde, Ray H., Jr.	Saugus
Hyland, Clayton M.	Wollaston
Hyland, Francis B.	Quincy

Insero, Frank	Haverhill
Iosue, Andrew P.	Everett
Ironfield, Richard, Jr.	Somerset
Israelson, Leonard	Boston

Jackson, Kenneth J.	Dorchester
Jackson, Richard T.	Arlington
Jackson, Trueman C.	Cambridge
Jacobs, Arnold J.	Revere
Jacobs, Joseph	North Wilmington
Jagger, Thomas P.	Methuen
Jais, Nicholas	Cambridge
Jalbert, Bernard W.	Springfield
James, Roland	Haverhill
Jameson, Donald A.	Lowell
Jefferson, Richard S.	South Hanover
Jenkins, Robert G.	South Weymouth
Jenkins, Theodore	Cambridge

Jepson, Robert L.	Milton
Jodka, Albin J.	Harvardevens
Johansson, Walter H.	Sherborn
Johnson, Arthur F.	Dorchester
Johnson, George B.	Medway
Johnson, Raymond E.	Harvardevens
Johnson, Robert E.	Southbridge
Johnson, Stanleigh I.	Woronoco
Johnson, Winslow G.	Wakefield
Johnston, James S.	Harvardevens
Johnston, William H.	Spencer
Joly, Gilbert T.	New Bedford
Jones, Edmund W.	Harvardevens
Jones, George A.	Medford
Jones, Wallace A.	Harvardevens
Jones, Warren S.	Arlington
Jordan, Robert F.	Framingham
Jorge, Arlindo	Ludlow
Joyce, James T.	Fitchburg
Joyce, Robert J.	Northborough
Joyce, Robert W.	Waltham
Joyce, William D.	Ayer
Judge, Leo G.	Everett
Jutras, Gerard J.	Lawrence
Kalinowski, William S.	Worcester
Kallin, Harold W.	Springfield
Kane, James W.	Cambridge
Kane, Joseph M.	Holyoke
Kanozak, Edward S.	Gardner
Kantor, Gurson I.	Springfield
Kaplan, Samuel	Springfield
Karas, Nicholas V.	Lowell
Karis, Richard C.	Newton Center
Karpuk, John P.	Worcester
Kasica, Adam S.	South Boston
Katsulas, Peter	Peabody
Kaufman, Leon F.	Brookline
Kaufman, Sumner	Mattapan
Kavanagh, Francis M.	Harvardevens
Keegan, Robert F.	Newton
Kehoe, James W.	Swampscott
Kelley, Leo A.	Boston
Kelley, Loren W.	Braintree
Kelley, Stanton R.	Harvardevens
Kelley, Thomas D.	Springfield
Kelliher, Charles F.	Mattapan
Kelly, James A., Jr.	Lowell
Kelly, James M.	Pittsfield
Kelly, John D.	Springfield
Kelly, Paul F.	Fitchburg
Kelly, Robert H.	Watertown
Kelsey, Irving N.	Pittsfield
Kemp, Howard W., Jr.	Westboro
Kendall, Clark	Belmont
Kenney, William E.	Cambridge
Keogh, Walter T.	Lawrence
Keown, William P.	Harvardevens
Kessler, Leon M.	Worcester
Kettendorf, Charles W.	Boston
Kieronski, John P.	Uxbridge
Kilduff, Francis B., Jr.	Scituate Center
Kiley, Clifford	Fall River

Killarkey, John T.	Jamaica Plain
Killilea, Francis M.	Jamaica Plain
Killilea, Stephen T.	Lynn
Killion, William G.	Lynn
Kimball, Prescott A.	Gardner
Kinney, Carl R.	Ayer
Kinney, Clement R.	Mattapan
Kirby, James R.	Leominster
Kirk, Chester W., Jr.	Ipswich
Kittredge, Austin J.	Clinton
Kittredge, Raymond F.	Fitchburg
Klaiber, John F.	Springfield
Klane, Charles H.	Malden
Klejna, Joseph A.	Westfield
Kline, Bertram W.	Brookline
Kline, Ray Y.	Harvardevens
Knowles, Edward W.	Brockton
Knutson, Arthur L.	Malden
Koczela, Edward P.	Adams
Koffman, Morris	Ayer
Kollinites, Christy J.	Lynn
Koolian, George	Chelsea
Koopman, John, Jr.	Malden
Koptuck, Anthony E.	Reading
Koritz, Harold E.	Dorchester
Koshinsky, Robert J.	Harvardevens
Koskinen, Gunnar K.	Peabody
Koziol, Stephen J.	Warren
Kraines, Robert W.	Arlington
Krecioch, Eugene R.	Fall River
Kristof, Joseph	East Longmeadow
Kuczewski, Isidore W.	New Bedford
Kulaga, Fred J.	Lawrence
Kushner, Milton	Mattapan
Kusiak, Edward H.	Chicopee Falls

LaBranche, George M. L., III	North Egremont
Lacaillade, Harold C.	Haverhill
Lagasse, Ronald A.	North Westport
Laird, Frederick J.	Harvardevens
Laitinen, Edwin A.	Harvardevens
Lakin, John R.	Holyoke
Lambert, Joseph M.	Somerville
Lamothe, Henry J.	Shirley
Lander, Harvey J.	Mattapan
Landers, Arthur E.	Oak Bluffs
Landesman, Norman	Brookline
Landin, Milton A.	Worcester
Lane, Raymond S.	Gloucester
Lange, Emil, Jr.	Methuen
Langevin, Francis G.	East Longmeadow
Langill, Wayne A.	Boston
Lanzillo, Kenneth F.	Wakefield
LaPage, Bernard F.	Charlestown
LaPierre, Hubert H.	Springfield
LaPoint, George J.	Somerville
LaPorte, Normand R.	New Bedford
Larsen, Robert S.	West Medford
Larson, Einar H.	North Easton
Lavault, Marcel L. A.	New Bedford
Lawler, John J.	Woburn
Lawrence, Henry W.	Peabody
Lawrence, John F.	Springfield

Lawrence, Robert M.	West Upton
Lawson, George A.	Harvardevens
Lawson, Philip J.	Harvardevens
Lawson, Russell L.	Brockton
Leach, Richard F.	Danvers
Leahy, Joseph F.	Melrose
Leander, Henry W., Jr.	Belmont
Learner, Leo J.	Springfield
Leary, Daniel J., Jr.	East Lynn
Leary, Francis J.	Holyoke
Leavitt, Lewis H.	West Somerville
Leavitt, Robert	Brockton
LeBlanc, Francis R.	Nahant
LeBlanc, John F.	Gardner
LeClair, Kenneth A.	Cohasset
Lederman, Melvin J.	Stoneham
Ledgard, Edward F.	Maynard
Ledin, Clarence L., Jr.	Stoughton
Lees, Albert, Jr.	Worcester
Leider, Robert I.	Roxbury
Leinonen, William E.	North Weymouth
Lenhoff, Edward S.	North Adams
LeRoy, Richard W.	Winchester
Leslie, John V.	Billerica
Leventhal, Robert E.	Attleboro
Leveton, Nathan A.	Springfield
Levine, Melvin	Revere
Lewis, James E.	Methuen
Lewis, Philip E.	Springfield
Lichtenstein, Edward L.	Brookline
Lifka, Reginald F.	Northampton
Liftman, Alvin H.	Stoughton
Linde, David	Lynn
Lindell, David N.	Brockton
Linehan, Edmund G.	Brookline
Lis, Stanley T.	Clinton
Liss, Edward, Jr.	Lawrence
Liversage, Richard A.	Fitchburg
Locke, Grant W.	Melrose
Lombardi, Paul J.	Hyde Park
Londerville, Burnis A.	Springfield
Lopes, Curtis L.	Fairhaven
Lopes, Humbert M.	Fall River
Lord, Ernest W., Jr.	Chelsea
Lotreck, Robert P.	Northampton
Louvaris, George R.	Roxbury
Lovejoy, Kenneth W.	Gardner
Lovering, Howard B.	Carlisle
Lovewell, George W.	Gardner
Lowe, John L.	Belmont
Lucas, Donald E.	Millbury
Luciano, Robert E.	Revere
Lucier, Arthur J.	Newton Centre
Lucier, Bruce H.	Greenfield
Lumenello, Kenneth A.	Lowell
Lustig, Alan M.	Brookline
Luti, William V.	Ayer
Lyman, George F.	South Hadley
Lynch, Edward J.	Lowell
Lyons, John J., Jr.	West Medford
Macero, Daniel N.	Somerville
MacGregor, Donald	East Brewster

MacKay, Chauncey D., Jr.	Ayer
MacKay, John D.	Methuen
MacKenzie, Douglas C.	Townsend
Mackler, Sidney	Springfield
Mackowski, Alfred S.	Dorchester
MacMonegle, James E., Jr.	Granby
MacNamara, Donald A.	West Medford
MacNear, Charles N.	Ashland
MacPhee, Lyman H.	Leominster
Macricosta, George	Marlboro
Maffei, Louis F.	Medford
Magina, Anthony, Jr.	Taunton
Magner, William F.	Pittsfield
Magoon, Richard D.	Lawrence
Maher, Donald F.	Melrose
Mahoney, Eugene P.	Malden
Mahoney, James T.	Arlington
Mahoney, John J.	Dorchester
Mailloux, Kenneth F.	Wellesley Hills
Mallett, Arthur E.	Springfield
Malone, Henry J., Jr.	Springfield
Malone, William A., Jr.	Ayer
Maloney, Edward J.	Springfield
Maloney, Joseph W.	Southbridge
Maloney, Richard E.	Wollaston
Mandell, Manuel	Dorchester
Manlich, John, Jr.	Harvardevens
Mann, George S.	Revere
Mann, Henry S.	Worcester
Mann, John A., Jr.	Fitchburg
Manning, Joseph P.	Roslindale
Manning, Martin J., Jr.	Somerville
Manning, Robert D.	Worcester
Mansfield, John L.	Taunton
Manuel, James, Jr.	North Adams
Marchetti, Frank P.	Somerville
Margi, G. Joseph	West Somerville
Markarian, Harold J.	Worcester
Markham, Walter L.	Ayer
Marmo, Joseph F.	East Boston
Marrs, Edward J.	Salem
Marrs, Leo F.	Peabody
Marsden, Frank, Jr.	New Bedford
Marsh, Philip G.	Roxbury
Marshall, Ronald E.	Chicopee
Martin, Daniel J.	Holyoke
Martin, Donald J.	Harvardevens
Martin, Edward J.	Lowell
Martin, Leslie J.	Lawrence
Martineau, William J.	Attleboro
Martino, Felix P.	Framingham
Mascis, Joseph D.	Leominster
Maslak, Stanley C.	Ayer
Matarese, Frank R.	Medford
Mateik, Stephen	Roxbury
Matheson, Frank W.	Wollaston
Mathews, Archie	Southfield
Matthews, William D.	Springfield
Mattsson, Robert J.	South Dartmouth
Maxwell, Burton D.	Rockland
Maxwell, Morrill A.	Lynnfield Center
May, David L.	Groton

Mayer, Joseph R.	Springfield
Maynard, Nelson A.	Boston
Mayo, John P.	Springfield
McAuliffe, John F.	Lawrence
McCann, William F.	Brockton
McCarthy, Francis P.	South Natick
McCarthy, Robert F.	Chelsea
McCarthy, Timothy S., Jr.	Peabody
McCarthy, William J.	Somerville
McCormack, Thomas W.	Milton
McCracken, Edward J.	Longmeadow
McDermott, William L.	Worcester
McDevitt, John F., Jr.	Springfield
McDevitt, John N.	Hudson
McDonald, James P.	Nahant
McDonald, Robert N.	Waltham
McDonnell, James H., Jr.	New Bedford
McDonough, James T.	Mattapan
McDonough, John J.	Worcester
McEachern, Arthur P.	Dorchester
McEvoy, William F.	Methuen
McGaughey, Frank W.	Holbrook
McGeough, George F.	Charlestown
McGonagle, Lawrence F.	Arlington
McGown, George W.	Clinton
McHugh, Bernard R.	Chelmsford
McIntyre, Stuart G.	Wellesley Hills
McKay, William	Andover
McKenna, Eugene J.	Harvardevens
McKenzie, James E.	Harvardevens
McKeon, James T.	Worcester
McKim, John	Quincy
McLaughlin, James M.	Cambridge
McLaughlin, John P.	Harvardevens
McLay, Thomas D.	Dorchester
McLean, Donald G.	South Sudbury
McLean, John S.	Lynn
McMahon, Robert W.	Dorchester
McManimon, Robert C.	Lowell
McManus, Francis M.	Malden
McManus, Harold A.	Medford
McManus, John J.	Watertown
McManus, Thomas A.	Waltham
McNall, Malcolm A., Jr.	Ayer
McNamara, Joseph R.	Revere
McNamara, Martin W.	Pittsfield
McNamara, Raymond W.	Lowell
McNeil, Charles H. N.	Northbridge
McNeil, Paul	South Braintree
McRoberts, Thomas A.	North Wilbraham
McWilliams, Robert L.	West Newton
Means, Augustus G.	Groton
Meltzer, David H.	New Bedford
Mentor, Leroy E.	Greenfield
Messer, Robert C.	Bernardston
Messina, Fred R.	North Andover
Metayer, Robert A.	Springfield
Metzger, Raymond P.	Springfield
Michelson, Louis F.	Danvers
Michitson, Paul A.	Haverhill
Miele, Victor A.	Lawrence
Miett, Joseph L.	Bradford

Miller, Andrew G.	Chelsea
Miller, Frank A.	Wilmington
Miller, Jacob B.	Mattapan
Miller, Robert A.	Marblehead
Miller, Robert L.	Northfield
Miller, Russell H.	Sterling Junction
Miller, Warren F.	Harvardevens
Milne, Clifton R.	North Andover
Milstone, Robert M.	Lawrence
Mingolla, Henry M.	Worcester
Minicucci, Robert P.	Lawrence
Minney, Harold T.	Springfield
Misiaszek, Roman J.	Clinton
Miskin, Norman K.	Brighton
Mita, William	Worcester
Mitchell, Edward F.	West Newton
Mobilia, William W.	Medford
Molitoris, Edward J.	Easthampton
Monahan, Clement J.	East Dedham
Mondor, Milton M.	Springfield
Monette, Henry F.	Gardner
Monson, Donald C.	Stoneham
Monteiro, Stanley B.	Foxboro
Montgomery, Walter J.	North Quincy
Moore, Francis W., Jr.	Peabody
Moore, James G.	Gardner
Moore, Kenneth C.	Monson
Morecroft, Harry W.	Malden
Morel, Charles E.	Hudson
Morell, Leroy M.	Greenfield
Morency, William A.	Fitchburg
Morgan, George F.	Lawrence
Moriarty, Francis J.	Lawrence
Moriarty, Joseph P.	Holyoke
Moriarty, Paul J.	South Boston
Morrison, William J.	Pittsfield
Morse, Alfred R., Jr.	Waltham
Morse, Robert S.	Boston
Morton, Stewart K.	Sunderland
Mosher, Edwin J.	Boston
Motta, Arthur	New Bedford
Moulaison, George E.	Melrose
Moynihan, Walter V.	Maynard
Mullen, John F.	Lynn
Muller. Lucien A.	Fitchburg
Mullins, William B.	West Newton
Murachver, Jacques	Everett
Murphy, Edward F.	Dorchester
Murphy, Francis J.	Allston
Murphy, Francis T.	North Scituate
Murphy, Leon A.	Winthrop
Murphy, William J.	East Braintree
Nadeau, Robert E.	Springfield
Nadel, David J.	Brookline
Nagle, Francis J.	West Lynn
Nahigyan, Dana W.	Greenwood
Nally, Walter F.	Worcester
Nanez, Rudolph B.	Boston
Narbis, Bertrand F., Jr.	Marblehead
Nardi, Michael D.	Brockton
Naroian, Edward	Whitinsville
Neary, Edward J.	Somerville

Nee, Robert H.	Boston
Neece, Richard A.	Chicopee
Needleman, Gordon	Everett
Nelligan, Robert C.	Lowell
Nelson, James C.	Saugus
Nelson, John R.	Springfield
Nelson, Richard W.	Brockton
Newby, Edward J.	Waltham
Newell, Chandler W.	Harvardevens
Newman, Edward F., Jr.	Marlboro
Newman, John R.	Marlboro
Newton, Donald H.	Wollaston
Newton, Neil W.	Pittsfield
Nicholas, Leo G.	Lynn
Nicholeris, Nestor	Somerville
Nicholson, Frank J.	Franklin
Nickerson, Paul G.	Everett
Nickerson, Reginald L.	Chatham Port
Nicolosi, Santos S.	Lawrence
Nigro, Albert R.	Everett
Niland, William J.	Jamaica Plain
Nims, John B.	West Concord
Nims, Harrie R.	West Concord
Nionakis, John P.	Haverhill
Nobile, Giovanni H., Jr.	Dorchester
Noel, Robert A.	New Bedford
Nolan, Edward J.	Hopkinton
Norkin, Harry	Springfield
Norton, Francis H.	Brookline
Novak, Edward	Harvardevens
Nutile, Vincent D.	Lynnfield Center
Nyberg, Carl W.	Braintree
Oberg, Carl S.	Shrewsbury
O'Brien, Joseph E.	Revere
O'Brien, Robert L.	Arlington
O'Brien, Walter F.	Revere
O'Brien, William J.	Everett
O'Connell, Paul P.	Watertown
O'Connell, Walter E.	Reading
O'Connor, Frederick G., Jr.	Melrose
O'Connor, Robert E.	West Roxbury
Odell, Richard D.	Newtonville
O'Donnell, John T.	Milton
Oehm, Charles A., Jr.	Longmeadow
O'Gorman, Joseph R.	Harvardevens
O'Grady, David I.	Newton Highlands
O'Keefe, Leo F.	Natick
Oker, Jay B.	Southbridge
Oldmixon, George E.	Dighton
O'Leary, Bernard T.	North Grafton
O'Leary, John D.	Wilmington
Oliari, Louis G.	Brockton
Oliver, John A.	Athol
O'Mara, James P.	South Boston
O'Neil, James W.	Lowell
O'Neill, Robert F.	Arlington
Orlowski, Edwin J.	Harvardevens
Orrall, Frank Q.	Winthrop
Osgood, Dexter H.	Brockton
Ostrander, Robert F.	Pittsfield
Ostrowski, Harold F.	Webster
O'Toole, William D. T.	RFD, Sharon

Ouellet, Ernest J.	Somerville
Ovian, Stephen	Worcester
Owens, Albert J., Jr.	Hingham

Pachesis, Alphonse V.	Worcester
Padula, Leo M.	Lunenburg
Page, Robert A.	Medford
Paine, George A., Jr.	Montague City
Palmer, Gilder	Lee
Pandell, Nestor W.	Harvardevens
Pano, Peter	Worcester
Papoulias, Nicholas L.	Harvardevens
Pare, Richard A.	Holyoke
Parent, Edgar S.	Stoughton
Parfitt, Samuel H.	Holyoke
Parker, Albert E., Jr.	Springfield
Parker, Henry C.	Boston
Parkes, Richard S.	Lexington
Paskauskas, Charles N.	Fitchburg
Paul, Richard S.	Holbrook
Paul. Robert F.	Jamaica Plain
Paulekas, John	Cambridge
Paulsen, John R.	Woburn
Paulson, Joseph S.	Revere
Pease, Leon E. D., Jr.	Springfield
Peirce, Henry B., Jr.	North Adams
Pelletier, Arthur F.	Orange
Pelletier, Joseph A.	Fisherville
Peltier, Irving A.	Hudson
Pendergast, Thomas M.	Easthampton
Peretsman, Gerald	Boston
Perkins, Franklin H.	Lancaster
Perkins, Gilbert E.	Manchester
Perkins, Martin P.	West Peabody
Perkins, William N.	Brookline
Persechino, Oresto	South Barre
Peters, Francis X.	Wilmington
Peters, George A., Jr.	Canton
Peters, Mitchell R.	Worcester
Peters, Robert L.	Canton
Peters, Thomas E.	Revere
Peterson, Carl L.	Gloucester
Peterson, Clarence W.	Reading
Peterson, Edgar H.	Acton
Peterson, John W.	Lincoln
Peterson, Leonard J.	Wakefield
Peterson, Richard K.	Lowell
Peterson, Wayman T.	Mattapan
Petrino, Armando R.	Watertown
Pettengill, John C.	Greenfield
Phaneuf, Conrad R.	New Bedford
Phaneuf, Robert P.	Dracut
Phelps, Charles W.	Salem
Phelps, Harley P., Jr.	New Ashford
Phinney, Hollis W.	Bourne
Phipps, Clarence R.	Mendon
Phipps, Donald H.	Mendon
Piatok, Murray A.	Revere
Piepol, Vincent J.	Athol
Pierce, David L.	Auburndale
Pierce, Melvin	Peabody
Pierce, Stewart W.	Ayer
Pike, Franklin L., Jr.	Lynn

Pike, Ralph W.	Lynn
Pilkington, George E.	West Roxbury
Pincus, Paul	Chelsea
Pineault, Theodore G.	Winchendon
Pinkham, Robert S., Jr.	Wollaston
Pinto, Arnold L.	Medford
Pipes, Thayne R.	Lancaster
Pirie, Edwin A.	Springfield
Pitcher, Allan L.	Lynn
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Pitoniak, Thomas F.	Westfield
Place, Mark I.	Worcester
Plosinski, Victor G.	Norwood
Plucinski, Walter P.	Worcester
Plumer, Charles F.	Springfield
Plunkett, William R.	Pittsfield
Poirier, Charles J.	Belmont
Poitras, Donald J.	Salem
Pollard, Leonard, Jr.	Farley
Polonsky, Abraham	Roxbury
Pomeroy, Robert F.	North Easton
Pope, Thomas F.	East Boston
Popp, Frederick W.	Melrose
Porter, Allen N.	Stoughton
Post, Robert Z., Jr.	Brookline
Pothier, Lomer J.	Medford
Power, Richard M.	Millis
Power, William H.	Cambridge
Powers, James M.	Quincy
Powers, Thomas F., Jr.	Greenfield
Powers, William E., Jr.	Haverhill
Pratt, Norman E.	Brockton
Pregler, Robert A.	Belmont
Pributsky, Gerald	Fall River
Priest, William G.	Maynard
Prouty, Richard M.	Milford
Prouty, Robert S.	Rutland
Provost, Richard W.	Brockton
Pucillo, Carmine A.	East Boston
Puliafico, Carmelo A.	South Barre
Pustel, Gabriel	Lawrence
Putnam, Robert E.	Leeds
Qualey, James R.	Braintree
Quance, Earl S.	Methuen
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Rannenberg, Paul B.	Springfield
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Reardon, John J., Jr.	Quincy
Reddick, John E.	Sharon
Reed, Irwin T.	Holyoke

Reed, Raymond A.	Marblehead
Reidy, Roland J.	Worcester
Reilly, Francis R.	Taunton
Reines, Lawrence J.	Chestnut Hill
Remal, Alfred J.	Fitchburg
Renaud, George E.	Pittsfield
Renda, George J.	Chelsea
Reppucci, Giustino U.	Everett
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Roche, Richard H.	East Weymouth
Roche, Vincent C.	Worcester
Rochfort, George B., Jr.	Harvardevens
Rockwood, Alan P.	Harvardevens
Rockwood, Wendell A.	Gardner
Rodberg, Daniel D.	Wakefield
Rodda, John H. P., III	Provincetown
Rogers, Charles W.	Wakefield
Rogers, Mark B.	Newton Centre
Rogers, Philip R.	West Springfield
Rollins, Charles H.	South Burlington, Vt.
Rome, Milton	Lynn
Rooney, Edward R.	Attleboro
Rorstrom, Richard A.	Marlboro
Rosen, Harold	Natick
Rosenberg, Samuel D.	Newton Centre
Rosenfield, Aaron	Malden
Rosenthal, Sherman H.	Malden
Ross, Everett G.	Brighton
Ross, Robert J.	Lawrence
Roulier, Joseph A.	Adams
Rounds, Irving F.	Boston
Rovner, Albert	Chelsea
Roy, Frederick L., Jr.	Springfield
Roy, Joseph G., II.	Springfield
Rubin, Allen	Worcester
Rubin, Saul	Springfield
Rushforth, Calvin	Methuen

Ruzzo, John J.	Revere
Ryan, John F.	Taunton
Ryan, John M.	Harvardevens
Ryan, Richard B.	Fitchburg
Rybeck, William R.	Blackstone
Rypysc, John J.	Chicopee Falls

Safer, Edward G.	Leominster
Sahlberg, Henning A.	Ashland
Saievitz, Herbert D.	Chelsea
St. Croix, Andrew F.	East Boston
Salame, George	Springfield
Salvatore, Santo	Dorchester
Sandstrom, Paul L.	Worcester
Sardo, Philip J.	Melrose
Saunders, Daniel J., Jr.	Devencrest
Savage, Charles E., Jr.	Ayer
Saverse, William A.	Cambridge
Scanlon, Gerald F.	Holyoke
Scannell, James E.	Lowell
Scarmeas, Soterios G.	Lowell
Schaake, Fred J.	Methuen
Scheller, Louis E.	Harvardevens
Schensnol, Lionel	Sharon
Schiffman, Harold	Chelsea
Schiller, Nathan	Revere
Schlegel, Niles M.	Winthrop
Schlein, Abraham	New Bedford
Schreider, Elliot	Malden
Schulien, Howard E.	Harvardevens
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Schwartz, Edward, Jr.	Everett
Scott, James A.	Everett
Scott, Mahlon E.	Harvardevens
Seel, Frederick B.	Springfield
Segal, Harvey G.	West Newton
Seidenberg, Marvin E.	Brookline
Selig, Martin	Dorchester
Sellon, Charles A.	Dorchester
Selzo, Joseph R.	Worcester
Sereduk, George	North Chelmsford
Sfikas, Costas	Lynn
Shannon, Charles J.	Medford
Shapiro, Morris	Holyoke
Shapiro, Myron E.	Allston
Sharff, Sumner	Chelsea
Sharp, William A.	Fitchburg
Sharpstein, Sidney	Brookline
Shattuck, Sheldon M.	Woronoco
Shaw, Harry F.	Chelmsford
Shaw, Richard A.	West Dennis
Shaw, Russell W.	Weymouth
Shea, Francis T.	Holyoke
Shea, John W.	Boston
Shea, Thomas H.	Fitchburg
Shelvey, William J.	Lowell
Shepard, William L.	Westfield
Shepherd, Allister W.	Quincy
Short, Joseph A., Jr.	Gloucester
Shriber, Harold S.	Belmont
Shugrue, John J.	Lowell
Shwartz, Sol A.	New Bedford
Sica, Austin B.	Great Barrington

Sicurella, Joseph	Needham
Sidel, Alfred	Malden
Sievers, Gerhard R.	Jamaica Plain
Sifakis, Emanuel A.	Ayer
Silva, Lionel C.	Peabody
Silver, Alvan E.	Winthrop
Silverman, Frederick L.	Brighton
Simas, Geremias F.	Taunton
Simmons, Franklin A.	North Dartmouth
Simon, John G., Jr.	Springfield
Sinoff, Alvan C.	Brookline
Skarbek, Louis J.	Oxford
Skiddell, Harris	Chelsea
Skopetz, Alexander	Somerville
Skwarlo, John	Holyoke
Skyten, Robert	East Brookfield
Slieson, Joseph J.	Lowell
Small, Robert W.	Cambridge
Smith, Charles W.	Fitchburg
Smith, David E.	Cambridge
Smith, David J.	Marblehead
Smith, Everett J.	Taunton
Smith, Francis J.	Sewell
Smith, Hubert E.	Saugus
Smith, John A. M.	Boxborough
Smith, John C.	Lynnfield
Smith, John J., Jr.	Springfield
Smith, Richard W.	Spencer
Smith, Robert J.	Shirley
Smith, Robert K.	Melrose
Smith, Roger S.	North Andover
Smith, Thomas E.	Harvardevens
Smith, William F.	Brookline
Smookler, Sidney	Mattapan
Snell, James W., Jr.	Dorchester
Snow, Isaiah, Jr.	Truro
Snyder, Daniel E.	Milton
Soderman, Harold F.	Harvardevens
Sokolow, David	Dorchester
Solari, Arthur J.	Everett
Solari, Michael S.	Natick
Solari, Robert F.	Everett
Solomon, Bernard	Dorchester
Solomon, Harry H., Jr.	Waban
Sondrol, Robert O.	Methuen
Sorgini, John P.	Lynn
Soule, Webster F.	Ayer
Spang, Paul R.	Wakefield
Spaulding, James E.	Northfield
Spaulding, Kenneth E.	West Springfield
Spettel, Richard J.	Newton Highlands
Spooner, Harry N.	Harvardevens
Spooner, Roscoe O.	Charlestown
Spracklin, Fred C.	Chelsea
Stanhope, Russell H.	Worcester
Stankus, Raymond J.	Wollaston
Staples, Paul C.	Dunstable
Star, Harry	Dorchester
Stark, Irving K.	Melrose
Stasikelis, George L.	Gardner
Stavrakes, James	Harvardevens
Stead, Lewis L.	Hopedale

Steede, Joseph T.	Waltham
Stephano, C. Charles	Gardner
Stephens, Arthur A.	Ashland
Stern, Harold	Roxbury
Sternburg, Louis L.	Brookline
Stevens, Brooks, III	Concord
Stevens, Richard L.	Harvardevens
Steward, Frederic C. R.	West Somerville
Stewart, Harry T., Jr.	Quincy
Stickney, Robert S.	Newburyport
Stillings, Herbert S., Jr.	North Andover
Stocking, Roderick P., Jr.	Fitchburg
Stodder, Kenneth	Arlington
Stone, Joseph B.	Cambridge
Stone, Seymour	Malden
Strachocki, Alphonse	North Dartmouth
Straka, Edward J.	Fitchburg
Strum, Kenneth C.	Weston
Suhonen, Oliver M.	Harwich
Sullivan, Cornelius M.	Hyde Park
Sullivan, John J.	Holyoke
Sullivan, Paul E.	Chicopee
Sullivan, Richard J.	Westfield
Supranovicz, John M.	Cambridge
Suprenant, Henry B.	Shelburne Falls
Sussman, Melvin J.	Roxbury
Swan, Robert H.	South Weymouth
Swartz, Allen I.	Harvardevens
Swartz, Max	Dorchester
Swedberg, Ralph R.	Worcester
Swiderski, Stanley W.	Cambridge
Swieskowski, Henry P.	Springfield
Swistro, Dominick J.	Holyoke
Swymer, John D.	Woburn
Sykes, John T.	Bradford
Symmes, Richard P.	Swampscott
Syner, Frank N.	Springfield
Szafranski, Stanley J.	Indian Orchard
Szpak, Francis S.	Adams

Taddeo, Edward R.	Natick
Taggart, Donald O. S.	Melrose
Talcott, Charles W.	Melrose Highlands
Talmage, John H.	Duxbury
Talvio, Sulo W.	Harvardevens
Tanguay, Armand R.	Gardner
Tannebring, Robert S.	Beverly
Tanner, Ralph B.	Marlboro
Tarantino, Pasquale A.	Boston
Tatham, Murray M.	Wellesley
Taugher, Charles V.	South Hadley Falls
Taurone, Dominic T.	East Boston
Taylor, Allan F.	West Roxbury
Taylor, Ashton B.	Harvardevens
Taylor, Eugene A.	Fitchburg
Taylor, Irving	Chelsea
Taylor, James J.	New Bedford
Taylor, James S.	Springfield
Taylor, Selwyn H.	Lawrence
Taylor, William G.	Brockton
Taymor, Howard N.	Brookline
Teahan, Edward J.	Holyoke
Tedesco, Frank L.	Weymouth

Terzian, Harry	Whitman
Testarmata, Joseph	Fitchburg
Testarmata, Nazarino R.	Fitchburg
Testarmata, Romolo	Fitchburg
Tevrowsky, George J.	Peabody
Theriault, Gerard L.	Belmont
Thibeault, Joseph R.	Chicopee Falls
Thistle, Roy	Chelsea
Thomas, John	Southbridge
Thomas, Robert I.	Natick
Thompson, Joseph E.	Worcester
Thornton, Leif N.	Quincy
Tidd, James F.	Groton
Tidman, Walter F.	Grafton
Tiffany, Paul	Holyoke
Tighe, Robert W.	Boston
Tippett, Robert M.	Longmeadow
Tisdell, Richard C.	Ayer
Tisdell, Robert J.	Shrewsbury
Titelman, Arnold Z.	Roxbury
Tobin, Patrick F.	Adams
Tolman, Russell E.	North Adams
Tomasunas, Francis J.	Cambridge
Toohey, Thomas D., Jr.	Cambridge
Torchia, Alphonse F.	North Adams
Toro, Guy C.	Chelsea
Tortorella, Rocco N.	Natick
Tossavainen, Weikko W.	Chester
Tracy, Henry J., Jr.	Melrose
Traiger, Hyman S.	Chelsea
Tretakoff, Maurice I.	Boston
Trimper, Ernest C.	Ayer
Triplett, Robert L.	Attleboro
Truesdale, Lawrence G.	Watertown
Tuhna, Martin	Brookline
Turin, Herbert J.	Roxbury
Turow, George S.	Lynn
Tyler, Edward L., Jr.	Athol

Udelson, Stanley T.	Roxbury
Uliana, John H.	Munson
Ulin, Elliott R.	Newton Centre

Vairo, Joseph R.	Leominster
Valente, Frank	Worcester
Valenti, Henry R.	North Adams
Van Vorse, Leonard J.	Maynard
Van Wart, Arthur F.	Newton
Van Winkelen, Herbert	Malden
Vavoudes, Marius P.	Brighton
Velander, Harry J.	Turners Falls
Vernick, Herbert C.	Salem
Vincent, Warren J.	Wakefield
Voigt, Willard D.	Fall River
Volin, John H.	Pittsfield
Volinn, George	Boston
Von Kamecke, Ralph A.	East Boxford
Vose, Christy A.	Brockton

Wakeham, Chester E.	Medford
Waker, Rutledge A.	Roxbury
Waldman, Marvin D.	Waltham
Walker, Charles M.	Holyoke

Walker, Ward C.	Ayer
Wall, James W.	Chelsea
Waloweek, Wallace	Northampton
Walsh, John C.	North Andover
Walsh, John J.	Beverly
Wandrei, Alfred E.	Adams
Ward, Arthur C.	Harvardevens
Ward, William J.	Holyoke
Ware, John J.	South Boston
Warshawsky, Joseph	Greenfield
Wasserman, Irving	Cambridge
Wasserman, Stanley F.	Brighton
Waters, Ronald V., Jr	Springfield
Watson, Robert G.	Braintree
Watson, Robert L.	Cambridge
Waugaman, Philip R.	Arlington
Waxler, Murray	Brookline
Waye, William H.	Lunenburg
Weatherbee, William H.	Wilmington
Webber, John F.	Winchendon
Webber, John T.	Beverly
Webster, Alverne L.	Leominster
Webster, John M.	Westfield
Weekes, Richard	Harwich Port
Wehry, Joseph J., Jr.	Dalton
Weiner, Arnold L.	Quincy
Weiner, Theodore L.	Mattapan
Weiss, Jack	Dorchester
Welch, Edward	Springfield
Welch, John C.	Quincy
Welch, Parker W.	Marblehead
Welling, Augustine J.	East Boston
Wellington, John P.	West Medford
West, James W., Jr.	Revere
Wester, Edwin	El Cajon, California
Wheeler, Alan D.	Marlboro
Whitcomb, Lewis M.	Amherst
Whitcombe, Wilcox L., Jr.	Weston
White, Edward L.	Northampton
White, John K.	Harvardevens
White, Malcolm S., Jr.	Woburn
White, Paul K.	Medford
White, Raymond H.	Medway
Whitney, Gregg S.	Wilbraham
Wholley, James W., Jr.	Everett
Whyte, Henry S.	Allston
Wickman, Irving G., Jr.	
Wicky, Peter S.	Harvardevens
Wiener, Herbert	Roxbury
Wilber, Thomas E.	Springfield
Wilder, George A.	Belmont
Wilkey, Carlisle L.	Cambridge
Williams, Walter	Hyde Park
Williams, Warren A.	Squantum
Williamson, Earle W., Jr.	South Weymouth
Willis, Donald L.	Brockton
Wilson, Donald R.	South Hadley
Wilson, Fred R.	Ipswich
Wilson, Ralph W., Jr.	Gloucester
Winer, Albert	Palmer
Winniman, Douglas R.	Springfield
Wironen, Richard	Gardner

Wiseblood, Edward	Haverhill
Wisnewski, Bronislaw P.	Gardner
Wisnioski, Stanley W., Jr.	Hyde Park
Wisocky, Julius	South Boston
Wiswell, Alan S.	Bradford
Wojciechowski, Edward K.	North Attleboro
Wojcik, Frank J.	Chicopee
Wojcik, Frank T.	Easthampton
Wolenty, Peter J., Jr.	Hudson
Wolstenholme, Chester C., Jr.	Harvardevens
Woodhouse, John R.	New Bedford
Woodies, Robert C.	Harvardevens
Wrenn, Gordon P.	Fall River
Wyman, Jerome F.	Worcester

Yee, Kenneth F.	Boston
Yeretzian, Armen	Lynn
York, Ronald T.	Saugus
Young, Richard K.	North Reading
Young, Warren I.	Concord
Yudis, Anthony J.	Boston

Zabar, Melvin L.	Dorchester
Zall, Robert R.	Lawrence
Zamanakos, Arthur S.	Lowell
Zaxman, Benjamin	Boston
Zelazo, Edward S.	Adams
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UNIVERSITY OF MASSACHUSETTS ENROLLMENT

OCTOBER 1947

UNDERGRADUATE COLLEGE AT AMHERST

School	1948		1949		1950		1951		Total		
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Total
Liberal Arts	70	76	93	75	104	44	70	74	337	269	606
Science	61	31	98	40	127	38	78	53	364	162	526
Horticulture	27	9	47	6	102	2	23	2	199	19	218
Agriculture	22	2	37	0	61	3	34	2	154	7	161
Engineering	6	0	25	0	46	0	43	0	120	0	120
Home Economics	0	28	0	29	0	29	0	28	0	114	114
Division of Physical Education..	5	0	5	0	18	0	8	2	36	0	36
Specials									2	5	7
	191	146	305	150	458	116	256	159	1212	576	1788

UNDERGRADUATE COLLEGE AT DEVENS (OCTOBER 1947)

Majors	Semesters Completed				
	0	1	2	3	Totals
ENGINEERING	215	68	273	125	681
LIBERAL ARTS	125	73	328	121	646
SCIENCE	83	40	148	55	326
HORTICULTURE	29	11	4	0	44
AGRICULTURE	23	10	4	0	37
PHYSICAL EDUCATION	12	4	11	2	29
GRAND TOTALS	487	206	768	303	1763

STOCKBRIDGE SCHOOL (OCTOBER 1947)

1948		1949		
Men	Women	Men	Women	Total
173	6	240	4	423

GRAND SUMMARY (OCTOBER 1947)

Undergraduate College at Amherst	1788
Graduate School	196
Stockbridge School	423
Undergraduate College at Devens	1763
	4170

GIFTS AND BEQUESTS

For the information of those who may wish to make a gift or a bequest to this University, the following suggestion is made as to a suitable form which may be used.

There are a number of worth-while activities of the University which are handicapped by lack of funds and for which small endowments would make possible a greater measure of service to our students and to the Commonwealth. The religious work on the Campus is an example. This is now carried on in a very limited way by current private contributions. Further information concerning this and other activities in similar need will be gladly furnished by the President.

SUGGESTED FORM

"I give and bequeath to the Trustees of the University of Massachusetts, at Amherst, Massachusetts, the sum of...dollars."

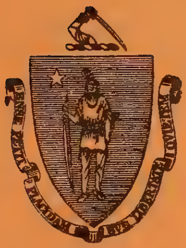
(1) (Unrestricted)
"To be used for the benefit of the University of Massachusetts in such manner as the Trustees thereof may direct."

or (2) (Permanent Fund: income unrestricted)
"to constitute an endowment fund to be known as the............................ Fund, such fund to be kept invested by the Trustees of the University of Massachusetts and the annual income used for the benefit of the College in such manner as the Trustees thereof may direct."

or (3) (Specific Purposes)
"to be used for the following purposes,"
(Here specify in detail the purposes.)

Bulletin

THE UNIVERSITY OF MASSACHUSETTS



GRADUATE SCHOOL

1948-1949

Bulletin

THE UNIVERSITY OF MASSACHUSETTS

Graduate School Number

1948 - 1949

The Graduate School Catalogue for the sessions of 1948-49 is part of the Eighty-fifth Annual Report of The University of Massachusetts and in conjunction with the general catalogue of The University it constitutes Part II of Public Document 31 (Sec. 8, Chapter 75, of the General Laws of Massachusetts.)

AMHERST, MASSACHUSETTS

Volume XL February, 1948 Number 2

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Publication of this Document Approved by the State Purchasing Agent

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CALENDAR

1948

June 11, Friday and June 12, Saturday	Entrance Examinations
June 14, Monday	Registration for Summer Session
June 15, Tuesday, 8:00 A.M.	Summer Session Opens
July 24, Saturday, 12:00 M.	End of First Six Weeks of Summer Session
July 26, Monday, 8:00 A.M.	Summer Session Opens for Second Half.
September 4, Saturday, 12:00 M.	End of Summer Session
September 20, Monday, 9:00 A.M.	Registration of Freshman and Senior Students
September 21, Tuesday, 9:00 A.M.	Registration of Sophomore and Junior Students
September 22, Wednesday, 2:00 P.M.	Opening Convocation
October 12, Tuesday	Columbus Day. No college exercises.
November 11, Thursday	Armistice Day. No college exercises.
November 24, Wednesday, 12:00 M. to November 29, Monday, 8:00 A.M.	Thanksgiving Recess
December 17, Friday, 12:00 M. to January 3, 1949, Monday, 8:00 A.M.	Christmas Recess

1949

January 3, Monday, 8:00 A.M.	Classes Resume
January 21, Friday to January 29, Saturday	Final Examinations
January 29, Saturday	First Semester Ends
February 1, Tuesday, 9:00 A.M.	Registration for Freshman and Senior Students
February 2, Wednesday, 9:00 A.M.	Registration for Sophomore and Junior Students
February 3, Thursday, 8:00 A.M.	Second Semester Begins
February 22, Tuesday	Washington's Birthday. No college exercises
April 14, Thursday, 12:00 M. to April 20, Wednesday, 12:00 M.	Spring Recess
May 26, Thursday, to June 2, Thursday 5:00 P.M.	Final Examinations
June 3, Friday to June 6, Monday	Commencement

THE TRUSTEES OF THE UNIVERSITY

Organization of 1948

Members of the Board

	Term Expires
Harry D. Brown of Billerica	1947
John W. Haigis of Greenfield	1947
Joseph W. Bartlett of Boston	1948
Philip W. Whitmore of Sunderland	1948
Frank L. Boyden of Deerfield	1949
Richard Saltonstall of Sherborn	1949
Alden C. Brett of Belmont	1950
Ernest Hoftyzer of Wellesley	1950
Mrs. Elizabeth L. McNamara of Cambridge	1951
Leonard Carmichael of Medford	1951
Mrs. Joseph S. Leach of Walpole	1952
Ralph F. Taber of West Newton	1952
Clifford C. Hubbard of Mansfield	1953
John M. Deely of Lee	1953

Members Ex Officio

His Excellency Robert F. Bradford, *Governor of the Commonwealth.*
Ralph A. Van Meter, *Acting President of the University.*
John J. Desmond, Jr., *Commissioner of Education.*
John Chandler, *Commissioner of Agriculture.*

Officers of the Trustees

His Excellency Robert F. Bradford, *Governor of the Commonwealth, President.*
Joseph W. Bartlett of Boston, *Chairman.*
James W. Burke of Amherst, *Secretary.*
Robert D. Hawley of Amherst, *Treasurer.*

The Graduate School Staff

Ralph A. Van Meter, *Acting President of the University.*
Fred J. Sievers, *Director of the Graduate School.*
Deans of the Schools.
Heads of all Divisions.
Heads of Departments in which Graduate Courses are offered.
Professors, Associate Professors and Assistant Professors in charge of courses offered for graduate credit.

The Graduate School Advisory Committee

Fred J. Sievers, *Director of the Graduate School,* Chairman.
Leon A. Bradley, *Head of the Department of Bacteriology.*
Carl R. Fellers, *Head of the Department of Food Technology.*
Richard W. Fessenden, *Professor of Inorganic Chemistry.*
Helen S. Mitchell, *Dean of School of Home Economics.*
Albert W. Purvis, *Professor of Education.*
Harvey L. Sweetman, *Assistant Professor of Entomology.*

GENERAL INFORMATION

HISTORY

Graduate courses leading to the degree of doctor of science were offered in botany under President Clark and in chemistry under Professor Goessmann as early as 1876. No candidate, however, completed the requirements for that degree. It was not until 1892, under President Henry H. Goodell, that courses leading to the degree of master of science were offered. This degree was first conferred in June, 1896, on two candidates. Graduate courses leading to the degree of doctor of philosophy were first offered in 1897, with chemistry, botany and entomology as major and minor subjects. The first degree was conferred on one candidate in June, 1902.

In the early years the graduate work was conducted under the direct administration of the President in conjunction with the four year courses. The demand for advanced work increased, however, and in June, 1908, the trustees made the Graduate School a separate unit in the College and appointed a director. Beginning with July 1, 1930, the responsibilities of the Graduate School were combined with those of the Agricultural Experiment Station. This arrangement is proving mutually beneficial by making the staff and equipment of the Experiment Station available for service in the Graduate School, and in turn providing an opportunity to utilize the services of graduate students in organized research projects.

LOCATION AND LANDS

The University of Massachusetts is located in Amherst, a town of about six thousand people, overlooking one of the most picturesque sections of the Connecticut Valley. From the standpoint of teaching material in the field of science and agriculture, the location is ideal. Amherst is eighty-eight miles from Boston, fifty miles from Worcester, twenty-five miles from Springfield, eighteen miles from Greenfield and eight miles from Northampton. The campus consists of a tract of approximately seven hundred acres, lying about a mile north of the village center. The University is well provided with modern buildings and equipment, description of which may be found in the general catalogue.

PURPOSE AND SCOPE OF THE GRADUATE SCHOOL

The purpose of the Graduate School is to provide qualified students with proper guidance in the methods of advanced study and research. Courses leading to the degree of doctor of philosophy, master of science, and master of landscape architecture are available. Students who desire advanced courses but who do not wish to become candidates for an advanced degree are also admitted.

Doctor of Philosophy

Candidates for the degree of doctor of philosophy are required to pursue study in three subjects, one of which is designated as the major, and the others as minors. An original thesis is considered a part of the major subject. The degree is conferred upon graduate students who have met the following requirements:—

1. The devotion of at least three years to three subjects of study and research.
2. The earning of not less than ninety credits of which not less than sixty shall be in the chief or major subject, and not less than fifteen in each of two minor subjects.
3. The preparation of a satisfactory thesis.
4. The passing of final examinations, written and oral, in both the major and minor subjects.

5. The presentation of evidence of a working knowledge of both French and German.

6. The passing of a public oral examination.

7. The payment of all fees and expenses.

It should be emphasized that the requirements for this degree are not computed primarily in terms of time and credits but that the degree is conferred only upon such students as have reached satisfactory attainment in some special branch of learning.

MASTER OF SCIENCE

Candidates for the degree of master of science are required to pursue study in two subjects, one of which is designated as major and the other as minor. When desirable and approved by the director, the minor may be made up of subjects from more than one department. An original thesis is considered a part of the major subject.

The degree is conferred upon graduate students who have met the following requirements:—

1. The devotion of at least one year to two subjects of study and research.
2. The earning of not less than thirty credits, of which approximately two thirds shall be in the major subject.
3. The preparation of a satisfactory thesis in the major subject except in education where this is optional.
4. The passing of final examinations, written and oral, in the major subject.
5. The payment of all fees and expenses.

MASTER OF LANDSCAPE ARCHITECTURE

Candidates for the degree of master of landscape architecture are expected to conform to the established courses as specified by the department of landscape architecture. The degree is conferred upon graduate students who have met the following requirements:—

1. Work covering at least three years, of which a minimum of one and one-half years must be devoted to study in residence, and a minimum of one year spent in practice, specific requirements concerning the nature of such practice to be laid down by the department.
2. Submission of a complete written report on the work done in practice.
3. Written approval from the employer as to the quality of service during the period devoted to practice.
4. Preparation of a satisfactory thesis.
5. Presentation of convincing evidence of genuine aptitude for some branch of landscape architecture as design, construction or management.
6. Completion of final examinations.
7. Payment of all fees and expenses.

The degree of bachelor of landscape architecture may be earned upon the completion of one year of specialized work in that field. (See page 43.)

ADMISSION

Admission to the Graduate School will be granted:

1. To graduates of the University of Massachusetts.
2. To graduates of other institutions of good standing who have received a bachelor's degree substantially equivalent to that conferred by this University.

The University of Massachusetts, together with a number of other universities, recognizes the Graduate Record Examination as prepared and administered by the Carnegie Foundation for the Advancement of Teaching as particularly valuable evidence of qualifications, and recommends this examination to students who may feel the need for supplementing their undergraduate records for purposes of satisfying admission requirements. For further information with regard to this examination and places where it may be taken, students should write to the Carnegie Foundation for the Advancement of Teaching, 522 Fifth Avenue, New York 18, New York.

Applications for admission should be accompanied by a transcript of the student's undergraduate record.

ENROLLMENT FOR A DEGREE

Admission to the Graduate School is not to be interpreted as implying admission to candidacy for an advanced degree in any given department. Such candidacy is subject to specific requirements as laid down by the several departments, and the student must secure the approval of the head of the department in which he desires to major before he can become a candidate for a degree in that subject.

STUDY IN RESIDENCE

It is understood that, in general, graduate credit will be granted only for courses pursued in residence, that is, in regularly approved courses conducted by a qualified member of the staff of the University of Massachusetts.

Under certain conditions, and then only by special arrangement with the director of the Graduate School, credit earned elsewhere will be accepted to apply toward the requirements for the degree.

Non-Degree Enrollment

Graduate work may be taken by students who are not candidates for a degree. Such enrollment permits the special privilege of a wider range in the selection of courses. The courses selected should, however, bear an appropriate relation to one another and be within the confines of the preparation of the student. A statement of the subjects chosen must, in each case, be submitted to the director of the Graduate School for approval.

Prerequisites

In case an applicant has not completed in his undergraduate work as much of the subject he desires to select for his major study as is required of graduates of the University of Massachusetts, he will be expected to pursue such undergraduate courses in that subject as the head of the department may consider necessary, without credit toward the advanced degree.

In the case of minor subjects for advanced degrees, credit begins to accrue from the point where the previous training of the applicant ended, whether it be graduate or undergraduate in its rating at this University—subject, however, to such limitations as may be fixed by the department concerned.

General Statement

A working knowledge of French and German is considered important for successful graduate work in practically all the major lines, and is required for the doctor of philosophy degree. Students not offering modern language for admission will be given an opportunity to acquire proficiency in same along with their graduate work.

The courses listed under departmental statements in the succeeding pages constitute the principal and characteristic work of the graduate student.

The University reserves the right to make changes in the requirements for degrees without notice.

COURSES OFFERED

Doctor of Philosophy—Major Subjects

Courses available as major subjects for the degree of doctor of philosophy:

Agronomy
Bacteriology
Botany
Chemistry
Economics
Entomology
Food Science
Food Technology

Master of Science—Major Subjects

Courses available as major subjects for the degree of master of science:

Agricultural Economics and Farm Management
Agronomy
Animal Husbandry
Bacteriology
Botany
Chemistry
Dairy Industry
Economics
Education
Entomology
Floriculture
Food Technology
Geology and Mineralogy
Home Economics
Olericulture
Physical Education for Men
Physiology
Pomology
Poultry Science
Psychology
Public Health
Romance Languages
Wildlife Management
Zoology

Master of Landscape Architecture

Courses available for the degree of master of landscape architecture:
Landscape Architecture

Minor Subjects

Courses available as minor subjects:

Agricultural Economics and Farm Management
Agronomy
Animal Husbandry
Bacteriology
Botany
Chemistry
Dairy Industry
Economics
Education
Engineering
English
Entomology
Floriculture
Food Technology
Forestry
Geology and Mineralogy
German
History
Home Economics
Landscape Architecture
Mathematics
Olericulture
Philosophy
Physical Education for Men
Physics
Physiology
Pomology
Poultry Science
Psychology
Public Health
Romance Languages
Sociology
Veterinary Science
Wildlife Management
Zoology

THESES

A thesis must be on a topic in the field of the candidate's major subject, and must indicate that its writer possesses the ability and imagination necessary to do independent constructive thinking. The following rules should be adhered to in the preparation and presentation of a thesis:—

1. The objective of a thesis should be an attempt to make real contribution to knowledge and practice. When completed it should be of a quality worthy of publication as a contribution from the department concerned.

2. The thesis, in its completed form, will be judged largely upon the ability of the author to review literature and reach definite deductions; to formulate a problem, plan a method of attack, and work out a solution; and to summarize his material and draw conclusions. Scholastic attainment in writing and presenting the results of the study will also be an important factor in the evaluation. No thesis markedly poor in its English will be accepted.

3. After the student, in consultation with his major adviser (head of the department in which the student selects his major), decides upon a thesis subject, he is required to submit an outline to the director of the Graduate School. The director, with this as a basis, selects from the graduate staff a thesis committee to which the student then submits the outline for approval. This committee will, thereafter, have direct charge of all matters pertaining to said thesis, and it is recommended that the student use the advice available from this source in the progress of his research. The thesis must have the approval of this committee before arrangements are made for the final examination for the degree.

4. Three complete, bound copies of the thesis, including drawings and any other accessories, are required by the Graduate School office in order that the files in the director's office, the library and the department in which the thesis was prepared may be supplied.

5. If the thesis is printed, whether in periodical or book form, the fact that it is a thesis submitted for an advanced degree at the University of Massachusetts shall be explicitly stated in the title itself or as a footnote on the front page. Such modifications as may be deemed necessary for publication shall have the approval of the director.

6. Because of the time required to give adequate consideration to the research conducted by the student, it is highly desirable that theses be submitted to the committee, in the case of doctors' theses, not later than March 15, and in the case of masters' theses, not later than May 15 of the academic year in which the degrees are to be conferred. The theses in their final form shall be deposited with the director by June 1.

7. If typewritten, whether designed for publication or to remain in the typewritten form, the size of the sheet, the arrangement of the title page, the general structure of the thesis, the character of the paper, and the binding must conform to definite standards.

A. *Size of sheet.* Size of sheet must measure 8½ x 11 inches.

B. *Form of title page.* The title page should be distributed as artistically as possible and must be arranged in this order:

- a. Subject.
- b. Name of author.
- c. "Thesis submitted for degree of—".
- d. "University of Massachusetts, Amherst."
- e. Date.

C. Following the title page, the arrangement may take such form, variable of course with the subject matter, as is illustrated below:—

- a. An analytical outline of thesis.

b. An introductory statement in which the purposes of the author are set forth.

c. The body of the thesis composed of literature critically reviewed and deductions made, formulation of method of attack or procedure, and results secured. (All literature reviews and any work done by others should be so separated that no question can be raised as to which portion of the thesis represents the original investigation. It should be clearly kept in mind that *compilation* is not considered original investigation.)

d. Summary and conclusions.

e. Bibliography. (This should have the approval of the chairman of the thesis committee before final arrangement.)

f. Acknowledgments.

g. Statements of approval signed by members of the thesis committee.

D. *Paper*. See sample in the University store.

E. *Binding*. See sample of binding in director's office.

8. All theses are the property of the University and subject to the will of the director of the Graduate School.

FINAL EXAMINATIONS

For the degree of doctor of philosophy final examinations on the minors are given upon the completion of the subjects. In the major subject, a written examination, if successfully passed, is followed by an oral examination in the presence of the graduate staff.

For the degree of master of science, or master of landscape architecture, a final examination in the major subject, which may be written or oral, or both, is given by the department concerned.

ESTIMATE OF EXPENSES

A charge of $50 per semester, payable in advance, which covers tuition, laboratory and student health fees, is imposed on students who are residents of Massachusetts. For residents of other states or foreign countries, this charge is $110 per semester. In cases where students carry less than a full schedule of courses, a special tuition rate is provided. For purposes of definition, all students claiming residence in the State shall at time of admission provide the treasurer's office with an official statement from their town or city clerk as evidence.

Board should not be in excess of $9 per week. Rooms for graduate students are not available in the dormitories, but can be rented in private homes at from $20 to $25 per month. The costs of books and incidentals should not exceed $150 per year.

LOTTA SCHOLARSHIPS

The Lotta Crabtree Agricultural Fund provides for a limited number of scholarships as an award to worthy graduates of the University of Massachusetts interested in continuing their education in agriculture, horticulture, or physical and biological sciences. These scholarships pay $500 per annum and application for consideration should be made to the director of the Graduate School.

TEACHING FELLOWSHIPS

Through a fund set aside for that purpose, the University offers a number of teaching fellowships. The value of these is limited to $800 per year, and appointment is made for a one-year period, with the privilege of renewal. These appointments absolve students from tuition and are especially suited to those who desire to gain teaching experience and to make themselves at least partly self-supporting while continuing their education. It should be recognized, however, that, in cases where students render this part-time service in return for the financial assistance extended, the residence time requirement for the degree in question is necessarily longer. Application for appointment to these fellowships should be made to the director of the Graduate School or to the head of the department in which the candidate's major interest lies.

RESEARCH FELLOWSHIPS

The Agricultural Experiment Station in its program of investigation frequently finds it desirable to utilize the services of graduate students qualified to do certain types of technical work required in connection with its several research projects. Funds are available for this purpose and qualified students may be elected to such fellowships. Not infrequently this arrangement affords an opportunity for the student to satisfy his thesis requirement by completing some unit of work within a larger project organized in the research program of the Experiment Station.

In recent years industrial concerns have been rather anxious to have certain investigations undertaken for them by the Experiment Station. For this service they are willing to lend financial support, and in deserving cases it has proved very desirable to accept and utilize these funds for fellowship purposes. At present several fellowships are supported on this basis. These are proving very satisfactory from the standpoint both of the student and the industry supporting the investigation.

GRADUATE COURSES DURING THE SUMMER

The University offers opportunities to pursue graduate courses during the summer in connection with the Summer School. While provision may be made for special study with several departments during the summer period, the scheduled courses are offered primarily for teachers who seek advanced work in education and closely related subjects for purposes of better preparing themselves for more effective service in the teaching profession. Details regarding courses offered, facilities for study, environment, etc., may be found in the Summer School catalogue, a copy of which is available upon request to the director of Short Courses.

DESCRIPTION OF COURSES

Agricultural Economics and Farm Management

A. H. Lindsey in Charge

COURSES FOR MAJOR OR MINOR CREDIT

126. Economics of Agricultural Production. Credit, 3.
Professor Barrett

155. Marketing Farm Products. Credit, 3.

156. Fundamentals of Cooperation. Credit, 3.

157. Agricultural Credit and Land Appraisal. Credit, 3.
Professor Lindsey.

171. Agricultural Economic Theory. Credit, 3.
Professor Lindsey.

176. Farm Operation and Advanced Farm Organization. Credit, 4.
Professor Barrett

178. Principles of Land Economics. Credit, 3.
Professor Lindsey.

179. Principles and Methods of Statistics. Credit, 3.
Professor Lindsey.

180. Advanced Statistics. Credit, 3.
Professor Lindsey.

182. Advanced Farm Operation. Credit, 3.
Professor Barrett.

184. Research Methods and Procedure. Credit, 3.

186 Investigations of Problems in Agricultural Economics and Farm Management. Credit, 1-3.
The Department.

190. Seminar. Each Semester, Credit, 1-3.
The Department.

200. Thesis.
The Department.
Credit, 10.

Agronomy

Dale H. Sieling in Charge

Graduate study in Agronomy is arranged to furnish training in Soils and Crops with an opportunity to specialize in either. The courses offered are designed to give the student thorough training in the application of the basic sciences to this applied science. Graduate courses in Chemistry, Botany, Bacteriology, Biology, Genetics and Geology will be required as may be needed to give a training balance and to complete the credit requirements.

COURSES FOR MAJOR OR MINOR CREDIT

105. Soil Genesis.—Factors influencing soil formation and development will be discussed. The science of soil classification and its application will be studied.
First Semester 1948-1949. Credit, 3.

111. Field Crop Production.—A survey course which includes the regional distribution, the cultural requirements, production, and the utilization of the principal field crops grown in the U. S.
First Semester 1948-1949. Credit, 3.

116. Forage Crops.—A survey course which includes the regional distribution, the cultural requirements and the utilization of the principal forage crops grown in the U. S.

Second Semester 1948-1949. Credit, 3.

126. Crop Improvement (applied Genetics).

Second Semester 1948-1949. Credit, 3.

135. Nutrition of Field Crops.—The study of plants in respect to their environment induced by man or by nature; such as water, air, temperature, supply of nutrients, injurious factors, and soil conditions.

First Semester 1949-1950. Credit, 3.

137. Fine Turf Culture.—A problem pertinent to the immediate need of growers of fine turf will be assigned. The organization and conduct of the work will be regularly supervised. If warranted, the results obtained will be published in a trade or scientific journal.

First Semester 1949-1950. Credit, 3.

139. Hay and Pasture Crops of the Northeast.—The cultural requirements and utilization of the legumes used for hay and pasture purposes in the Northeast.

First Semester 1949-1950. Credit, 2

145. Soil Physics and Technology.—The application of physical techniques to soils research will be discussed. The effect of heat, light, particle size and charge and air and water movement in soils on the properties and characteristics of soils will be studied.

First Semester 1949-1950. Credit, 3

160. Fertilization and Soil Conservation.—The purpose of this course will be to study the methods for proper soil management as they affect the conservation of our soil resources. The role of fertilization, crop adaptation, land use, and soil erosion control methods, will be stressed as applied to the general field of soil conservation.

Second Semester 1949-1950. Credit, 3.

163. Chemistry of the Soil.—The chemistry of soil formation, soil acidity, nutrient element availability, ionic exchange and fixation, biological soils reactions, soil-plant-microorganism relationships, and of organic matter of the soil will be discussed. The laboratory work will consist of physical, analytical and biochemical investigations of soils and important soil constituents.

1948-1949. Credit, 3 each semester.

164. Experimental Methods in Agronomy—The purpose of this course is to set forth some of the concepts regarding the application of statistics to the analysis and interpretation of data obtained in agricultural research. Such points as choice of field, design of experiments, effect of competition, interpretation of results, and other special factors that need to be considered in well-planned experiments are discussed.

Second Semester 1949-1950. Credit, 3.

185. Fertilizer Technology.—The chemical and physical problems of fertilizer formulation and manufacture will be discussed. Sources of raw materials, improvement of manufacturing methods, and objectives in the industry will be studied.

Second Semester 1949-1950. Credit, 3.

190. Seminar.

Credit, 1 each semester.

200. Thesis.—For students taking major work in Agronomy. Credit, 10-30.

COURSES FOR MINOR CREDIT ONLY

51. Field Crops.—A study of the field crops of the U. S. which will include their uses and improvement, with their soil and climatic requirements. Emphasis will be given to the best farm practices of the northeastern states as to rotation, liming, seeding methods, tillage, disease and insect control, and methods of harvesting and storage. As an individual problem, each student must make a detailed plan of crop production for the actual conditions of some New England farm. Credit, 3.

52. Soil Utilization.—The relationship of climate and native vegetation to the broader aspects of soil formation is described. Man's use of land resources is connected to show how the agricultural backgrounds of the settlers have been active in soil use and abuse. Soil erosion control and its significance to permanent agriculture is considered. Credit, 3.

57. Soil Formation.—The first part of this course considers those physical, chemical, biological, climatic and geological factors involved in soil formation. The relationship of these factors to the kinds of soils formed in the United States is discussed. Credit, 3.

78. Fertilizers—The primary purpose of this course is to relate soils and fertilizers to plant growth. Studies are made of fertilizer practices in the United States and Europe. In the early part of the course consideration is given to the history of fertilizer development with special emphasis upon early discoveries and causes of failure in early research. Later in the course studies are made of factors which relate fertilizers and soils to plant growth. Fertilizer formulation, technology and practice are considered in detail in the laboratory phase of this course. Credit, 3.

79. Soil Physics.—For seniors specializing in Agronomy. The factors in soil which control tilth and energy relationships and the laws of physics which govern these factors are discussed. This includes heat, light, color, particle size and charge, water and gas movement, energy relationships and other physical factors effecting changes in the soil. The laboratory is used to familiarize the students with various methods used in measuring these important physical factors. Credit, 3.

Animal Husbandry

Victor A. Rice in Charge

COURSES FOR MAJOR OR MINOR CREDIT

110. Advanced Nutrition of Farm Animals.—A course dealing with the chemistry and physiology of the digestion, absorption and utilization of feeds. The major portion of the course consists of a study of the literature concerning the phases of nutrition that are of the greatest interest and value to the individual student. Credit, 5.

120. Advanced Animal Breeding.—This course deals with the inheritance of specific characters and qualities in farm animals as revealed by experiment or through the regularly compiled records of the various Purebreed Associations. The student will make a thorough review and analysis of available data in the field of his choice. Credit, 5.

130. Problems in Livestock Production.—This course will deal with some specific problem in feeding, management, or production of some specific livestock product such as milk, wool, meat, etc. Assistance will be given in outlining the problem and setting up the experimental procedure and the student will be held responsible for collecting and analyzing the data. Credit, 5.

200 Thesis. Credit, 10.

COURSES FOR MINOR CREDIT ONLY

51. Nutrition of Farm Animals.—This course will present the fundamental principles of animal nutrition together with the identification, composition, properties and uses of the common feed stuffs. The application of these basic principles in calculating balanced rations for all classes of livestock will be stressed, followed by practical feeding problems assigned outside the classroom. Feeding practices in use with College livestock will be analyzed and demonstrated. Credit, 3.

53. Elements of Meat Packing.—The lectures will discuss the development of the modern packing industry, the history of meat inspection, the principles of meat preservation and the opportunities in this field. Laboratories include the classification of cattle, calves, sheep and swine into proper market classes and grades and slaughtering and dressing operations with animals provided by the college farm. Wholesale and retail cuts are prepared and various by-products are manufactured and sold. A one-day trip through the packing houses of Boston is a requirement of this course. Credit, 3.

56. General Livestock Production.—Studies in the historical and economic development, present status and probable future trends of general livestock production in the United States and especially in New England. Consideration will be given to types of production, systems of management, and methods of marketing· Credit, 4.

73. Advanced Meat Studies.—For Animal Husbandry and Food Technology seniors and graduate students. This course deals with the basic techniques in preparing, preserving, and utilizing meat products. Credit, 2.

75. Animal Breeding.—This course is planned to acquaint the student with the facts of reproductive physiology, with the facts and theories of modern genetics, and to show how such knowledge may be utilized through genetic analyses, selection and systems of breeding for the creation of more beautiful and more efficient animal types. Credit, 4.

78. Dairy Cattle Production.—This is an intensive course covering all phases of dairy cattle and milk production. It affords an opportunity to seek the solution to the economic, nutritional, genetic, and managerial problems concerned in successful dairying. Credit, 4.

81. Animal Husbandry Seminar. Credit, 1

Bacteriology and Public Health

Leon A. Bradley in Charge

Bacteriology

COURSES FOR MAJOR OR MINOR CREDIT

100. History of Bacteriology.—Studies in the development of bacteriology from the late seventeenth century to the present time, especially planned to show the developments of bacteriology in relation to agriculture, public health, the arts, industry, and medicine. Credit, 3.

101. General Bacteriology.—Lectures and Laboratory. The work is designed to acquaint the student with the more important bacteriological techniques and with fundamental principles governing bacterial action. Particular attention is given to the study of laboratory methods essential for a basic understanding of applied bacteriology. Credit, 3.

102. Advanced Bacteriology.—A systematic study of pathogenic and nonpathogenic bacteria, disinfectants and antibiotics. Credit, 3.

120. Physiology of Bacteria.—Lectures and laboratory on the nature of the bacterial cell and on nutrition and metabolism with emphasis on certain

fundamental aspects of physiological processes and activities. Designed for students specializing in bacteriology and open to others who have sufficient chemistry, general biology, and botany. Credit, 5.

130. Special Problems in Bacteriology.—Technical procedures and special investigational methods. The scope of this course can be varied to meet the individual requirements of a group of students specializing in the fields of agronomy, dairy industry, food technology, environmental sanitation or medical technology. Credit, 3-4.

150. Studies of Special Bacterial Groups.—A comprehensive study of the more important anaerobic species; study of fecal, oral and skin streptococci, with special reference to their differentiation. The procedure for fecal flora studies, and the technique of isolating single bacterial cells are included. Credit, 3.

160. Immunology.—Consideration will be given to bacteriological, immunological and serological procedures. Recent advances in these fields and associated fields as that of viruses, Rickettsiae, etc., will be discussed and demonstrated. Credit, 3-6.

170. Sanitary Bacteriology.—A detailed study of laboratory methods for the sanitary control of all types of waters, for milk and milk products and for drinking and eating utensils. Practical application of these methods will be made through field studies. Credit, 3.

190. Seminar.—Lectures or reports on current literature. Credit, 1-4.

192. Clinical Laboratory Methods.—The purpose of this course is to familiarize the student with routine clinical laboratory procedures and the interpretation of analytical results. Credit, 3-6.

200. Thesis.—Some bacteriological problem related to agriculture, food, or public health. Distributed as may be most beneficial for research work. Time and credit by arrangement. Credit, 10-30.

With the assistance of a faculty adviser a proper selection of courses permits the student to specialize in the field of medical technology. This curriculum involves a cooperative program jointly supported by the Graduate School of the University and the laboratories of the Bingham-Rockefeller Foundation.

COURSES FOR MINOR CREDIT ONLY

51, 52. Advanced Bacteriology.—Studies on bacterial metabolism and the influence of environmental factors on growth and viability. The differentiation and identification of bacterial species by morphological, cultural, physiological, and serological studies. The combined courses not only give to the student a comprehensive picture of the various forms of existing bacteria, but develop a special technique for the isolation, cultivation, and identification of both pathogenic and non-pathogenic species. Credit, 3.

Prerequisite: for 51 Bacteriology 31A or its equivalent;
for 52 Bacteriology 51 or its equivalent.

81, 82. Applied Bacteriology.—These two courses covering a full year's work are designed to give the student a working knowledge of present-day applied bacteriology. The subjects receiving special consideration include studies on disinfectants and methods of determining phenol coefficients; sanitary examination of water supplies and of shellfish; study of bacteriological principles which apply to preservation, fermentation, spoilage, and methods of sanitary examination of foods; methods for examining the sanitary quality of milk and milk products; the groups of bacteria normally present in milk and the factors which influence their development, and a consideration of the role of milk in the transmission of disease. Credit, 3.

Prerequisite, Bacteriology 51 or its equivalent.

Public Health

Through the cooperation of the Massachusetts Department of Public Health, provision has been made to offer the following courses, on a graduate level, for a limited number of students interested in environmental sanitation; and who intend to prepare for positions as sanitarians with Federal, State or local health agencies. In addition to the University requirements for admission, applicants as undergraduates must have majored in the field of chemistry and biology or submit acceptable evidence of equivalent experience as a full-time employee of official or voluntary health agencies.

COURSES FOR MAJOR OR MINOR CREDIT

130.	Special Problems in Public Health.	Credit, 3-6.
161, 162.	General and Community Sanitation.	Credit, 3.
164.	Water Microscopy.	Credit, 3.
170.	Sanitary Bacteriology. (See Bacteriology 170)	Credit, 3.
179.	Statistics. (See Agr. Economics 179)	Credit, 3.
184.	Administration.	Credit, 3.
186.	Field Studies in Environmental Sanitation.	Credit, 3.
188.	Epidemiology and Communicable Disease Control.	Credit, 3.
190.	Seminar.	Credit, 1 each semester.
200.	Thesis.	Credit, 10.

With the assistance of a faculty adviser a minimum of six semester courses must be selected from the following which are offered by cooperating departments within the University or by the professional staff of the Massachusetts Department of Public Health. This program, when approved by the Department and the Director of the Graduate School, will fulfill the student's minor requirements.

1.	Public Administration.	See Economics 161.
2.	Entomology (Medical).	See Entomology 74.
3.	Food Preservation.	See Food Technology 75.
4.	Examination of Food Products.	See Food Technology 192.
5.	Forest Management of Water Sheds.	See Forestry 51.
6.	Market Milk.	See Dairy Industry 52.
7.	Elements of Meat Packing.	See Animal Husbandry 53.
8.	Industrial Mycology.	See Botany 66.
9.	Advanced Nutrition—Metabolism of the Major Foodstuffs.	See Home Economics 103.
10.	Animal Parasitology.	See Zoology 69, 70.
11.	Sanitary Engineering (Sewerage).	See Civil Engineering 78.
12.	Chemistry of Water, Sewage and Sewage Sludge.	See Chemistry 63.
13.	Water Supply.	See Civil Engineering 77.

Public Health Nutrition: With the proper selection of courses students may specialize in a program of graduate study recommended by the American Dietetics Association to qualify as public health nutritionists. This program has been developed in cooperation with the School of Home Economics.

Botany

A. Vincent Osmun in Charge

COURSES FOR MAJOR OR MINOR CREDIT

106. History of Botany. Credit, 1 each semester.
Professor Osmun.

107. History of Plant Pathology. Credit, 1 each semester.
Professor Osmun.

108. The Comparative Morphology of Green Plants.
Credit, 3 each semester.
Professor Torrey.

109. The Evolution and Taxonomy of the Angiosperms.
Credit, 3-5 each semester.
Professor Torrey.

110. Systematic Mycology. Credit, 3 each semester.
Assistant Professor Banfield.

111. Advanced Plant Physiology. Credit, 3-5 each semester.
Assistant Professor Kozlowski.

112. Problems in Plant Pathology. Credit, 3-5 each semester.
The Department.

114. Plant Ecology. Credit, 3.
Associate Professor Hodge.

115. Plant Geography. Credit, 1.
Associate Professor Hodge.

116. Microtechnique. Credit, 2.
Professor Torrey.

117. Photographic Technique for Biological Illustration. Credit, 1.
Associate Professor Hodge.
Assistant Professor Banfield.

190. Botanical Literature: Assigned Reading. Credit, 1-5.
The Department.

200. Thesis. Credit, 10-30.

COURSES FOR MINOR CREDIT ONLY

51, 52. Plant Pathology. Credit, 3.
Assistant Professor Banfield

66. Industrial Mycology. Credit, 3.
Assistant Professor Banfield

67, 68. Plant Physiology. Credit, 3.
Assistant Professor Kozlowski.

84. The Ferns. Credit, 3.
Professor Osmun.

Chemistry

W. S. Ritchie in Charge

COURSES FOR MAJOR OR MINOR CREDIT

101. Inorganic Preparations.—Laboratory. The preparation of chemical products from raw materials. The manufacture and testing of pure chemicals. The laboratory work is essentially synthetic in nature, and is designed to aid in acquiring a more adequate knowledge of inorganic chemistry than is to be obtained by chemical analysis alone. Credit, 3-5 each semester.
Professor Smith.

102. INORGANIC CHEMISTRY OF THE LESS FAMILIAR ELEMENTS.—Lectures and collateral reading on the descriptive chemistry of some of the less common elements such as boron, gallium, indium, thallium, the lanthanides, fluorine, titanium, vanadium, tantalum, tungsten, and uranium. Correlations between structure or spatial configurations and chemical properties will be stressed to the extent permitted by modern data. Credit, 3.
Assistant Professor ROBERTS.

103. PHYSICAL CHEMICAL MEASUREMENTS.—Laboratory. Measurement of the electrical conductivity of solutions; degree of ionization; ionization constants; per cent hydrolysis of aniline hydrochloride from conductivity measurements; solubility product by the conductivity method; velocity of saponification by conductivity; neutralization point by conductivity; vapor pressure determinations; transport numbers; preparation and properties of colloidal solutions; transition points by dilatometric method; heat of solution of ammonium chloride and potassium nitrate; absorption of iodine by charcoal; determination of hydrogen ion concentration. To each student separate work will be assigned.
Credit, 3-5 each semester.
Professors FESSENDEN and SMITH.

105. CHEMICAL THERMODYNAMICS.—A study of the application of thermodynamics of chemical problems. Credit, 3.
Professor FESSENDEN.

106. ATOMIC AND MOLECULAR THEORY.—This course includes a consideration of the fundamental particles, natural and induced radioactivity, atomic theory based upon atomic spectra and the quantum theory, the nature of chemical binding, and molecular theory. Credit, 3.
Professor SMITH.

108. CHEMICAL SPECTROSCOPY.—This course is designed to give students practice in the use of spectroscopic equipment in solving chemical problems. The lecture work of the course will include discussions of (1) the design and use of instruments, (2) the elementary theory of spectra, and (3) the application of spectroscopy to chemical problems. The laboratory work will include practice in the use of the spectrometer and the spectrograph for the analysis of flame, arc, and spark spectra, and the use of the spectrophotometer for absorption measurements. Photographic procedures will be discussed and used in connection with the operation of the spectrograph. Credit, 3.
Professor SMITH.

121. ADVANCED ANALYTICAL CHEMISTRY.—Laboratory. This course consists of special work to meet the needs of the individual student. It may consist of ultimate analysis, electro-analysis, the analysis of definite classes of materials such as fertilizers, ores, insecticides, alloys or materials containing the rarer elements, and the use of organic reagents. Credit, 3-5 each semester.
Assistant Professor ROBERTS.

123. INTRODUCTION TO MICRO-CHEMISTRY.—Laboratory. Designed to illustrate the applications of micro technique to synthesis, analysis, and characterization. The microscopic work will include the optics of the microscope, micrometry, the microscopic study of fibres, crystals, and physicochemical phenomena and an introduction to microscopical qualitative analysis. The quantitative work will include the determination of carbon, hydrogen, nitrogen and halogen in organic materials and selected inorganic determinations.
Prerequisite: Chemistry 66, 30, 83, or the equivalent. Credit, 3-5 each semester.
Assistant Professor ROBERTS.

131. ADVANCED ORGANIC CHEMISTRY.—Laboratory. The preparation of compounds not included in Courses 51 and 52, such as the Kolbe synthesis of salicylic acid; the synthesis of camphor and of indigo; the preparation of medicinal compounds, e.g., acetanilide, phenacetin and barbituric acids; the prepara-

tion of dyes, e.g., rosaniline, malachite green, congo red; the study of the Grignard reaction, etc.

To each student, separate work will be assigned. Credit, 3-5 each semester.
Professors RITCHIE and CANNON.

133. ADVANCED ORGANIC CHEMISTRY.—The lectures will include discussion of the important theories of structure and reactions of organic compounds. Important type syntheses and general reactions; and recent developments in the field of organic chemistry will be emphasized. Credit, 3.
Associate Professor CANNON.

134. ADVANCED BIOCHEMICAL LECTURES.—Lectures on recent developments in the chemistry of proteins, lipids, carbohydrates, enzymes, and other materials of biological significance. The organic chemistry supporting the several major fields of applied biology will be emphasized. Credit, 3.

135. BIOCHEMISTRY LABORATORY METHODS.—Advanced laboratory work on preparation, examination, and analytical techniques for protein, carbohydrate, lipids, enzymes, etc. Methods of colloid chemistry will be included. Individual problems and work will be assigned as far as possible to meet individual requirements. Credit, 3-5 each semester.

136. ADVANCED BIOCHEMICAL ANALYSIS.—Advanced laboratory course in analytical methods applicable to naturally occurring materials including foods, feeds, etc. Research methods and techniques will be introduced as well as routine methods. Credit, 3-5.

137. BIOCOLLOIDS.—An introduction to the principles of surface chemistry that apply to colloid systems. Major consideration given to the emulsions and hydrophillic systems encountered in fields of applied biology. Collateral reading and preparation of literature reviews in the student's special field necessary.
Credit, 3.

151. SEMINAR.—Conferences, reports, or lectures. Credit, 1 each semester.
Professor RITCHIE.

178. ADVANCED PHYSICAL CHEMISTRY. Credit, 3.
Professor FESSENDEN.

181. ADVANCED ORGANIC CHEMISTRY. Credit, 3.
THE DEPARTMENT.

182. QUALITATIVE ORGANIC CHEMISTRY. Credit, 3.
THE DEPARTMENT.

183. ADVANCED QUANTITATIVE CHEMISTRY. Credit, 3.
Assistant Professor ROBERTS.

185. THEORETICAL INORGANIC CHEMISTRY. Credit, 3.
Professor SMITH.

188. HISTORY OF CHEMISTRY. Credit, 3.
Professor RITCHIE.

192. SPECIAL INVESTIGATIONS.—A continuation of Course 92, for graduate students majoring in chemistry. The student will have the opportunity to continue studying the methods of research. Problems of definite character will be assigned to the student in the various fields of chemistry. It will be necessary for the student to report on pertinent literature. Credit determined by work done. Both Semesters.

THE DEPARTMENT.

200. THESIS.—Research, and in the case of a degree, the preparation of an acceptable thesis in agricultural, analytical, inorganic, organic, physiological, or physical chemistry, under the direction of the professor in charge of the work.
Credit, 10-30.

COURSES FOR MINOR CREDIT ONLY

51, 52. Organic Chemistry. Credit, 4.
Professor Ritchie.

63. Chemistry of Water, Sewage and Sewage Sludge. Credit, 3.
Prerequisite: Chemistry 30, and permission of the instructor.
Assistant Professor Roberts.

65, 66. Physical Chemistry. Credit, 4.
Professors Fessenden and Smith.

79. Biochemistry. Credit, 4.

Dairy Industry

D. J. Hankinson in Charge

COURSES FOR MAJOR OR MINOR CREDIT

101. History and Development of Dairying.—A review of the early history of dairying and factors in the industry contributing to its present development. Credit, 3.

102. Ice Cream Problems.—A study of existing scientific, technical, and marketing problems in the field of ice cream making. Credit, 3.

103. Market Milk Problems.—Consideration of production, processing, and distribution of milk, the nutritional value of milk, chemical and bacteriological aspects of milk handling. Credit, 3.

104. Surplus Milk Problems.—The economical disposal of seasonal surpluses through cheeses, butter, milk drinks, etc. Credit, 4.

105. Dairy Plant Management.—The selection, construction, and arrangement of dairies and dairy machinery, and economical operation of same. Credit, 3.

195, 196. Seminar. Credit, 1.

200. Thesis.—Original research work having a bearing on some important problem in dairying. Credit, 10.

COURSES FOR MINOR CREDIT ONLY

52. Market Milk.—A study of the various phases of the market milk industry: sanitary production, transportation, pasteurization and handling in the city plant, marketing, delivery systems, milk and its relation to public health, inspection, milk laws, food value, and advertising. Cultured milk and other milk drinks also are included. Some milk plants are visited. Credit, 4.

75. Dairy Chemistry.—The various physical and chemical properties of milk, milk products, and their components are studied. Testing and control methods commonly used commercially for milk and dairy products are included; moisture and fat determinations, casein, salt, and acid tests, work with the Mojonnier apparatus, and other applied chemical tests are taken up in the laboratory. Credit, 3.

77. Butter and Cheese Making.—The first half of the semester is devoted to butter making, the remainder to cheese making, condensed and powdered milks. The various phases of the butter industry studied are: separators and cream separation; pasteurization, neutralization, and ripening of cream, preparation of starter cultures; churning, marketing, and scoring of butter; creamery management. The work in cheese making includes cheddar, cream, Neufchatel, cottage, processed cheeses, etc. The manufacture of condensed and powdered milk, and commercial casein is also covered. Credit, 4.

78. Ice Cream Making.—The course includes a study of the principles and practices of ice cream making. The effects of such factors as composition, quality, pasteurization, homogenization, aging and freezing on the finished prod-

uct are considered. Sherbets, ices, fancy and individual forms, and all flavors of ice cream are studied. Some time is devoted to refrigeration machinery, delivery equipment, and merchandising methods as they are related to the industry. Credit, 4.

79, 80. Seminar.—The course consists of a study of research done by the experiment stations, also a review of foreign literature. Students prepare papers on timely dairy subjects. Frequent addresses are made to the class by visiting authorities in dairying. Credit, 1.

Economics

Philip L. Gamble in Charge

COURSES FOR MAJOR OR MINOR CREDIT

110. History of Economic Thought.—A general study of the development of economic thought from its ancient beginnings; the contributions of the various schools; recent changes in economic history. Credit, 3 each semester.
The Department.

112. Economic History of the United States.—A study of the significant factors in the economic development of the nation. Credit, 3.
Assistant Professor Haller.

113. Central Banking.—A study of the organization and policies of the major central banks with special reference to the Federal Reserve System.
Credit, 3.
Professor Gamble.

140. Principles and Problems of Land Economics.—This course deals principally with the characteristics and classification of land, present and future uses of land, private property and the control over property, land income and the value of land. Credit, 3.
The Department.

152. Money, Banking, and Credit.—A critical survey of the development and operation of the monetary and banking systems of the United States.
Credit, 3.
Professor Gamble.

153. Marketing and Marketing Problems.—A study of the forces and conditions which determine prices and the mechanism, methods, and problems concerned with transporting, storing and distributing goods. Credit, 3.
The Department.

154. Corporation Finance.—An analysis of the financial policies of the corporation as a form of business organization, together with its social implications.
Credit, 3.
Assistant Professor Colwell.

155. Economics of Consumption.—The purpose of this course is a consideration of the importance of consumption in modern industry and commerce. It includes a study of the laws of consumption, standards of living, sources and factors determining family incomes, and of the administration of these incomes as shown by the expenditures of the nation and of various groups. The relation of consumption to the problems of population and to the development of society is also studied. Lectures, assigned readings, and class discussions. Credit, 3.
Assistant Professor Haller.

156. Business Fluctuations.—A study of business fluctuations and an analysis of the current business cycle theories. Credit, 3.
Professor Gamble.

158. The Fundamentals of Cooperation.—History, principles and business relations. (1) A Survey of the development, methods, and economic results of

great cooperative movements; (2) the organization of producers and consumers abroad, and the present aspects and tendencies in the United States; (3) the principles underlying successful cooperative endeavor and practical working plans for cooperative association. Credit, 3.
THE DEPARTMENT.

160. PUBLIC UTILITIES AND THEIR REGULATION.—The study will include the problem of social control of monopolies and industries affected with a public interest. Credit, 3.
THE DEPARTMENT.

161. PUBLIC ADMINISTRATION.—A general survey of the field of public administration. Special emphasis will be placed on the principles of organization, the functions performed by administration, and the relation of administration to democracy. Credit, 3.
MR. GOODWIN.

162. ADMINISTRATIVE LAW.—A study of government regulatory activities in relation to industry, agriculture, and labor, with emphasis on the legal framework within which these activities operate. Credit, 3.
MR. GOODWIN.

163. POLITICAL PARTIES AND ELECTIONS.—A study of the political process, and the nature and history of parties, pressure groups, nominations and elections. Credit, 3.
Assistant Professor FERWERDA.

164. MUNICIPAL GOVERNMENT.—A survey of the government structure and functions of American municipalities. Special attention is given to administrative problems arising from such functions as protection, education, welfare, correction, city planning and zoning. Credit, 3.
MR. GOODWIN.

165. CONSTITUTIONAL LAW.—An historical study of the fundamental rights and guarantees under the American Constitution as interpreted by decisions of the Supreme Court. Credit, 3.
MR. GOODWIN.

166. AMERICAN POLITICAL THOUGHT.—A study of the development of American political thought from colonial times to the present, with emphasis upon writings of the period. Credit, 3.
Assistant Professor FERWERDA.

167. INTERNATIONAL GOVERNMENT.—A study of international organization in the twentieth century, with emphasis upon the League of Nations, the World Court, and the United Nations and its affiliated agencies. Credit, 3.
Assistant Professor FERWERDA.

168. INTERNATIONAL LAW.—A study of the origin, character, and function of international law. Credit, 3.
Assistant Professor FERWERDA.

170. MONOPOLIES.—A study of the growth, development, and social control of monopolies. Credit, 3.
Assistant Professor HALLER.

173. MODERN ECONOMIC THEORY.—A study of current theories about value, distribution and prices. Credit, 3.
THE DEPARTMENT.

174. ADVANCED ECONOMIC THEORY.—A study of the classical and non-classical theories of value and distribution. Analysis of fundamental concepts and the relation of these to current problems of production, distribution and exchange. Credit, 3.
Professor GAMBLE.

175. Current Economic Problems and Literature.—Department seminar throughout the year. Credit, 1-3 each semester.
The Department.

176. Principles of Transportation.—The development of highway, waterway, and railway transportation, and its relation to the development of the country; the principles governing the operation and control of transportation agencies; present-day problems.
Lectures, text, and field work. Credit, 3.
Assistant Professor Haller.

177. Economics of International Trade.—A study of the policies, principles, and practices of international trade. Credit, 3.
Assistant Professor Haller.

178. Public Finance.—A study of the principles underlying public expenditures, public borrowing and taxation. Credit, 3.
Professor Gamble.

179. Labor Problems.—Reading and investigation. By arrangement.
Credit, 3.
Professor Gamble.

180. Labor Legislation.—A study of federal and state legislation affecting labor. Credit, 3.
Assistant Professor Hoar.

185. Economic Institutions and Practice in Relation to the State.—Studies in farm relief measures, taxation, bounties, subsidies, government control of commerce and industry. Credit, 2-5 each semester.
Professor Gamble.

191, 192. Investigation in Various Problems Related to Economics.—Credits to be determined by time spent and reports submitted.
The Department.

193, 194. Seminar.—A study of special problems in the field of government.
Credit, 3.

200. Thesis.—Research work in economics will be developed by four principal methods; namely, historical, statistical, accounting, and general field investigation. In all instances mastery of research methods includes facility in investigation, tabulation, and interpretation of results. Credit, 10-30.

COURSES FOR MINOR CREDIT ONLY

25. Applied Economics.—A course offered primarily for high school teachers (others may elect), which is intended to appraise such current economic questions as the business cycle, taxation, banking, international trade reparations, economic planning, and similar problems in the light of economic principles.
Credit, 3 each semester.
The Department.

81. Principles of Business Accounting.—The course aims to give the student an elementary working knowledge of the principles underlying the accounting system in the gathering, analysis, and interpretation of accounting data and the methods used in accounting and preparing the usual types of business statements for individual proprietorship businesses and partnerships. The use of accounting records as a means of business control, which is emphasized in this course, should be of special value to those students who will later be employed in managerial capacities. Credit, 3.
Assistant Professor Colwell.

51. Business and Industry.—Study of the organization and administration of business enterprise from the point of view of production. The course stresses administrative functions of production, finance, credit, and the relation between government and business. Credit, 3.
The Department.

Education

ALBERT W. PURVIS in Charge

Before being admitted to candidacy for the master's degree with a major in Education, the student must have, in addition to college requirements:

1. Two majors (18 hours each) or one major and 2 minors (12 hours each) in the subject-matter fields to be taught.
2. Approximately 15 hours of such fundamental courses as 51, 53, 72, 83, etc., listed in the undergraduate catalogue.
3. Experience in teaching. Students entering without teaching experience must arrange for practice teaching as soon as possible.

COURSES FOR MAJOR OR MINOR CREDIT

102. APPRENTICE TEACHING IN AGRICULTURE.—An opportunity offered occasionally to study this type of vocational education by participating in it. The work is that of an assistant teacher under supervision with a schedule of classes to teach and a prescribed line of study to complete. For one or two full semesters off campus. Credit, 6.
By arrangement. Assistant Professor OLIVER and MR. TAFT.*

103. PROBLEMS IN VOCATIONAL TEACHING.—The course deals with problems out of the experience of vocational teachers in Massachusetts. Constructive assignments bearing upon individual experiences are worked out in harmony with the campaigns for better teaching in vocational schools. Credit, 3.
By arrangement. Assistant Professor OLIVER and MR. TAFT.*

104. PRINCIPLES OF VOCATIONAL EDUCATION.—A survey of the objectives, history and legal requirements of vocational education in the United States.
By arrangement. Credit, 3.
Assistant Professor OLIVER and MR. TAFT.*

108. SECONDARY SCHOOL ADMINISTRATION.—This course deals with those important problems in secondary schools in which teachers and administrators are both involved, including the general principles in admission, promotion, personnel, discipline, extra-curricular activities, supervision, tenure, salary schedules, etc. Credit, 2.
Professor PURVIS.

109. ADMINISTERING SECONDARY SCHOOLS.—This course considers such problems as housing, finance, schedule, the library, guidance, cafeteria, public relations, etc. Ordinarily this course will follow course 108 and is intended primarily for those who wish to prepare for administrative positions.
Credit, 2.
Assistant Professor OLIVER.

110. ADMINISTRATION OF EXTRA-CURRICULAR ACTIVITIES.—The many problems of this phase of school work such as scheduling, financing, sponsorship, regulation of pupil participation are given general consideration. A more detailed study is made of some of the more important extra-curricular activities carried on in most of the secondary schools. Credit, 2.
Assistant Professor OLIVER.

113. RURAL AND ELEMENTARY GRADED SCHOOLS.—This course deals with the organization of rural and urban elementary schools. It considers such problems as community surveys, staff, lunches, transportation, extra-curricular activities, health programs, schedule, etc. Credit, 2.
Professor————————.

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* In cooperation with the Vocational Division, State Department of Education.

114. SUPERVISING ELEMENTARY EDUCATION.—This course deals with general problems of supervision, the elementary curriculum, activity programs, course content, projects, core-curriculum, and other supervisory duties in the elementary school. Credit, 2.

Professor————————.

115. SEMINAR IN EDUCATION.—There are occasional challenges that have to be met when they appear. These are problems of method, demonstration, fact finding, personal study, professional improvement, development of the functions of the critic teacher, etc. The procedure may be either scheduled group meetings or individual conference.

By arrangement. Credit, 2-3.

THE DEPARTMENT.

120. SCHOOL LAWS OF MASSACHUSETTS.—A review of the legal relations of the school personnel covering the usual experiences in school and community, presented in a series of selected cases having the support of court decisions. Credit, 3.

Professor PURVIS.

153. EDUCATIONAL TESTS AND MEASUREMENTS. To aid teachers and administrators in setting up a school testing program, analyzing the results, and planning a remedial program. Each instrument of evaluation is considered from both theoretical and practical angles. Credit, 2.

Assistant Professor ROURKE.

180. HISTORY OF EDUCATION.—A survey of educational movements from early times to the present, emphasizing their interpretation in the light of modern problems. Individual reports on supplementary readings. Credit, 2.

Professor PURVIS.

181. COMPARATIVE EDUCATION.—Studies of contemporary educational systems in such countries as England, France, Germany, Russia, China, etc., and a comparison of them with that of the United States. Credit, 2.

Professor————————

183. SECONDARY EDUCATION.—This course gives attention to the aims, relations, organizations, and functions of the high school and the activities that carry these out through curricula, schedules and extra-curricular organizations. Evaluation of procedures is stressed. Credit, 2.

Assistant Professor ROURKE.

188. THE SCHOOL CURRICULUM.—A study of the principles and techniques involved in curriculum building. Recent programs will be studied and evaluated. Readings and reports. Credit, 2.

Assistant Professor ROURKE.

191. EDUCATIONAL RESEARCH AND STATISTICS.—The principles and methods of research with special emphasis upon the technique used in Education. Statistics are studied chiefly from the standpoint of reporting and understanding the results of research. Required in first semester of students who anticipate completion of a thesis or problem in the current year. Credit, 2.

Professor PURVIS.

100. PROBLEM.—Work necessary to achieve an answer to a particular question in the educational field. Question to be of student's choosing, if possible. It may or may not involve original research and usually has only local significance. Credit, 4.

THE DEPARTMENT.

Prerequisite, Education 191.

200. THESIS.—A completed piece of work on some specific aspect of the educational field with necessary review of the literature pertaining to it. Original research is expected and the study should have more than local significance.

Prerequisite, Education 191. Credit, 8.

THE DEPARTMENT.

School of Engineering

George A. Marston in Charge

COURSES FOR MINOR CREDIT ONLY

Agricultural Engineering

51. House Planning.—Plan designs of the small house will be made. The arrangement of interior equipment, especially in the kitchen, and lighting, heating, water supply, and sewage disposal will be studied, together with a brief history of house materials, construction methods, equipment, and architectural styles. Consideration will be given to the economics of house building, including financing, and to maintenance and overhead expense. Credit, 3.

Associate Professor Markuson.

74. Farm Structures.—A study of the strength and durability of building materials, construction systems and the mechanical principles underlying their use in farm-construction. In the drafting room, studies will be made of some major farm building and complete working drawings finished in all essential details. Credit, 4.

Associate Professor Markuson.

80. Food Process Engineering.—A study of food processing machinery, steam boilers, evaporators, pumps, refrigeration machinery, and heat controlling devices. The course deals with problems of heat transfer in foods and processing equipment. Credit, 3.

Assistant Professor Tague.

83, 84. Agricultural Engineering Problems.—This course consists of individual problems chosen by the students under guidance of the department. The work is of an advanced nature, supplementing that of the regular agricultural engineering curriculum. Credit, 3.

The Department.

Civil Engineering

26. Route Surveying.—The principles of location, curves and earthwork and horizontal and vertical control nets for highways, railroads, pipe lines, and transmission lines are considered. Credit, 3.

Assistant Professor Hendrickson.

Prerequisites, C.E. 25 or C.E. 27.

34. Applied Mechanics (Statics).—The following topics are considered in the study of statics: colinear, concurrent, non-concurrent and parallel force systems in a plane and in space; static friction problems; first and second moments. The free-body method of analysis is emphasized. Algebraic and graphical solutions are determined. Credit, 3.

Professor Marston.

Prerequisites, Physics 26; Math. 31.

51. Strength of Materials.—The following topics are considered: elementary stresses and strains; combined stresses; riveted joints; torsion; shear and bending moments; stresses and deflections in beams; statically indeterminate beams; columns. Credit, 4.

Assistant Professor Osgood.

Prerequisites; C.E. 34, Math. 32.

52. Applied Mechanics (Kinetics).—This is a continuation of Civil Engineering 34 into the field of kinetics. It includes linear and angular motion, impulse and momentum, and work, energy and power. Credit, 3.

Assistant Professor Osgood.

Prerequisites; Math. 32, C.E. 34.

55. HIGHWAY ENGINEERING.—The design features of highway construction and relative merits of various types of highway surfaces are discussed in class. Plans, profiles, cross sections, and specifications for a short section of highway are prepared. Credit, 3.
Assistant Professor HENDRICKSON.
Prerequisites; C.E. 26, C.E. 30 or permission of Instructor.

76. FLUID MECHANICS.—The following topics are considered: properties of fluids, gas laws, viscosity, static pressures, gages, buoyant forces, dynamics of fluids, Bernoulli's theorem, flow in pipes, orifices, nozzles, weirs and open channels. Hydraulic similitude is also discussed. Credit, 4.
Professor MARSTON.
Prerequisites; Physics 26, Math. 32, C.E. 52.

77. WATER SUPPLY.—This course considers the engineering aspects of public water supply systems and includes the following topics: quantity of water required; hydrology; collection systems; distribution systems; pumping machinery; purification work. Credit, 4.
Professor MARSTON.
Prerequisite, C.E. 76 or C.E. 75 concurrently.

78. SANITARY ENGINEERING (Sewerage).—This course considers the engineering aspects of the design, construction, and maintenance of sewerage systems and includes the following topics: hydraulics of sewers, sanitary and storm sewers, sewage treatment, plant design and operation. Credit, 3.
Professor MARSTON.
Prerequisite, C.E. 77.

80. SOIL MECHANICS.—This course is a study of the mechanical classification of soils based upon field and laboratory work and the validity of these classifications as a means of predicting soil behavior. The student is guided through case studies in embankment stability, seepage, and consolidation. Credit, 3.
Assistant Professor HENDRICKSON.
Prerequisite, Geology 50.

Electrical Engineering

40. FUNDAMENTALS OF ELECTRICAL ENGINEERING.—This course is a study of the fundamental concepts of electricity including units, basic laws and applications to direct-current circuits, magnetism and electromagnetism, magnetic circuits in air and iron, induced voltages and inductance, generated voltages, capacitance, conduction in liquids and gases and batteries. Credit, 3.
Professor BROWN and MR. SACHSE.
Prerequisites, Math. 31, Physics 26.

51. ALTERNATING-CURRENT CIRCUITS.—This course is a study of alternating currents in power and communication circuits. Subjects included are instantaneous relationships between electrical quantities, vector representation, sinusoidal and non-sinusoidal waves, single-phase and polyphase circuits, coupled circuits, power and power measurements, basic networks and filters. Credit, 3.
Assistant Professor LANGFORD and MR. MOHN.
Prerequisite, E.E. 40.

53. DIRECT-CURRENT MACHINERY.—Direct-current generators and motors are studied with respect to their characteristics, design, operation, and applications. Special types of direct-current machines and control devices are also included in the course. Credit, 3.
Assoc. Professor WILSON and MR. SACHSE.
Prerequisite, E.E. 40.

54. ALTERNATING-CURRENT MACHINERY.—This course is a study of alternating-current generators, motors, transformers and converters with respect to their design, operation, control and applications. Credit, 4.
Assoc. Professor WILSON and MR. SACHSE.
Prerequisites, E.E. 51 and E.E. 53.

74. Electronics.—This course includes the study of electron motion in electric and magnetic fields, basic electron optics, electron tubes and their characteristics, rectifiers and amplifiers through Class A applications. Credit, 3.
Professor Brown and Mr. Mohn.
Prerequisite, E.E. 51

75. Applied Electronics.—This is a continuation of course E.E. 74 and includes a study of electron tubes in power amplifiers, oscillators, control circuits and special applications. Credit, 3.
Professor Brown and Mr. Mohn.
Prerequisite, E.E. 74.

90. Illumination.—This course is an introduction and survey of illumination engineering. It includes the study of light sources, units, measurements, vision, and lighting calculations and design. Credit, 3.
Mr. Sachse.
Prerequisite, Physics 26.

Mechanical Engineering

59. Materials of Construction.—The manufacture, processing, and utilization of many of the diversified products entering into construction today.
Credit, 2.
Assistant Dean Keyser.

61. Testing of Materials.—A study of how the composition, structure, and treatment of materials influence their properties. Tests and observations are made to substantiate the theory. Metals are emphasized but tests are also performed on such materials as wood, concrete, plastics, sands and oils.
Credit, 2.
Professor Bates and Mr. Coffey.

65. Heat Engineering I.—This course is a survey of the field of applied energy and is designed for engineering students outside of the mechanical engineering field. The application of the laws of heat to energy transforming devices is studied, but not as extensively as in M.E. 63 and 64. A study will be made of gases, vapors, fuels, combustion, heat transfer, atomic energy release, measurement of power, air compressors, fans, refrigeration and air conditioning.
Credit, 3.
Professor Swenson.
Prerequisite, Physics 26; Mathematics 6.

68. Kinematics.—Principles of mechanism, including velocity and acceleration diagrams, instant centers, gear teeth and gear trains, cams, and various speed transmissions. Credit, 3.
Professor Bates.
Prerequisites, M.E. 1; Physics 25; Math. 6.

72. Fundamentals of Metallurgy.—The course is a study of the structure and properties, manufacture and fabrication of metals and metal products, including metallurgical laboratory work with emphasis on metallography and X-Ray techniques. Credit, 2.
Assistant Dean Keyser.

86. Industrial Engineering.—A broad course treating with the many problems encountered in a modern industry. Topics include types of organization, management, plant location, arrangement of equipment, product design, methods of production control, costs, wage payment systems and personnel relations. Credit, 3.

87. Industrial Management.—Management of industrial plants, cost systems, methods of fixing prices, methods of paying labor, welfare methods, methods of handling labor, equipment and material. Credit, 3.

88. Time and Motion Study.—Study of a number of jobs performed in industry with the objective of simplifying work, cutting costs, and computing standard times. Charts and curves will be used, supplemented by motion pictures of jobs in factories. Credit, 3.
Prerequisite, M.E. 28. ————————.

Entomology and Zoology

Charles P. Alexander in Charge

Entomology

COURSES FOR MAJOR OR MINOR CREDIT

101. Insect embryology; polyembryony; parthenogenesis; paedogenesis; heterogeny. Credit, 2.
Assistant Professor Shaw.

102. Advanced insect morphology.
3 credits first semester; 2 credits second semester. Credit, 5.
Assistant Professor Hanson.

103. Ancestry and development of insects, including fossil forms.
2 credits each semester. Credit, 4.
Assistant Professor Hanson.

104. Insect histology. Credit, 2.
Assistant Professor Shaw.

105. Animal luminosity; chemistry and physics of insect colors.
Credit, 1.
Professor Sweetman.

107. Advanced insect physiology.
Prerequisite, Entomology 81, or equivalent. Credit, 3.
Professor Sweetman.

108. Advanced apiculture. Credit, 2.
Assistant Professor Shaw.

110. Insect pollination; insect products of value to man. Credit, 2.
Assistant Professor Shaw.

111. Insect behavior; insect architecture. Credit, 2.
Assistant Professor Shaw.

112. Geographic distribution of animals and plants, with particular reference to insects; insect migrations. Credit, 2.
Professor Alexander.

113. Advanced biological control of insects and weeds.
Prerequisite, Entomology 80, or equivalent. Credit, 3.
Professor Sweetman.

114. Advanced animal ecology.
Prerequisites, Entomology 79, or equivalent. Credit, 3.
Professor Sweetman.

115. Advanced chemical control of insects.
Prerequisite, Entomology 80, or equivalent. Credit, 3.
Professor Sweetman.

117. Research methods in entomology. Credit, 3.
Professor Sweetman.

118. Legislative control of insects. Credit, 3.
Professor Sweetman.

125. History of entomology and classifications; lives and works of prominent entomologists.
2 credits each semester. Credit, 4.
Professor Alexander.

128. The international code of zoological nomenclature; advanced systematic entomology.
2 credits each semester. Credit, 4.
Professor Alexander.

140. Coccidology.—A study of the scale insects, their structure; habits; technique of mounting; identification, and control.
2 2-hour laboratory periods. Credit, 2.
Assistant Professor Hanson.

141. Classification of Minor Orders of Insects.—Taxonomy of groups belonging to the smaller orders.
2 2-hour laboratory periods. Credit, 2.
Assistant Professor Hanson.

142. Techniques in the mounting and preservation of insects by means of fluids, slides, plastics, pinning, etc.
2 2-hour laboratory periods. Credit, 2.
Dr. Smith.

150. Advanced Insect Taxonomy.—Classification of various insect groups, indicating the latest methods in taxonomy and the principles of classification.
2 2-hour laboratory periods. Credit, 2.
The Department.

180. Seminar.—Reports on the current literature of entomology; special reports by resident and visiting speakers.
1 class hour. Credit, 1.

200. Thesis.—Original work on one or more topics in insect morphology, systematic entomology, or in the fields of medical entomology, insect physiology, insecticides, biological control or apiculture. The thesis requires from one-half to two-thirds of the total working time of the student in his major field.
Credit, 10-30.

COURSES FOR MINOR CREDIT ONLY

51.	Pests of Special Crops.	Credit, 3.
53, 80.	Applied Entomology.	Credit, 6.
55, 56.	Insect Taxonomy; Immature Stages of Insects.	Credit, 6.
57.	Insect Morphology.	Credit, 4.
66, 85.	Apiculture.	Credit, 6.
72.	Forest Entomology.	Credit, 3.
74.	Medical Entomology.	Credit, 2.
79.	Animal Ecology.	Credit, 3.
81.	Insect Physiology.	Credit, 3.
87, 88.	Special Problems.	Credit, 1-3.

Zoology

COURSES FOR MAJOR OR MINOR CREDIT

100. Advanced Invertebrate Zoology.—Invertebrate fauna of local ponds, streams and bogs. Classification, morphology, life cycles, and methods of preparing permanent mounts of material collected.
Prerequisites, Zoology 25 or 60-70, or equivalent. Credit, 3.
Assistant Professor Traver.

101. Parasites of Local Vertebrate Animals.—Classification, morphology, preparation of permanent mounts.
Prerequisites, Zoology 69-70, or equivalent. Credit, 3.
Assistant Professor Traver.

105. The Phylogeny and Morphology of Arthropods other than Insects.—Especial attention is given to the grouping of Arthropods on the basis of morphological characters that are of taxonomic importance. This work is supplemented by assigned reading in literature dealing with the subject.
2 2-hour laboratory periods; 1 class hour. Credit, 3.
Assistant Professor Hanson.

114.—Advanced Animal Ecology.—An advanced course dealing with the fundamentals of environments. Detailed field studies of the biotic and physical conditions of various environments are given. Ordinarily offered in Fall Semester only.
Prerequisites, Entomology 79, or equivalent. Credit, 3.
Professor Sweetman.

120. Experimental Embryology.—Lectures, seminar reports and laboratory work dealing with the chief factors in the mechanics and physiology of development: The germ cells; fertilization, establishment of the primary axis; embryonic induction, and differentiation.
Prerequisites, Zoology 75 and 76, or equivalent. Credit, 3.
Professor Woodside.

130. Applied Zoology.—Considerations of industrial, educational, and recreational importance of such groups as sponges, corals, fishes, game birds, mammals, and other groups; of parasites of game birds and animals; and of parks, zoos, marine exhibits, museums, etc. Credit, 3.
Mr. Bartlett.

140. Natural History Methods.—A survey of modern practices in the field. This will involve a study of visual education, trailside museums, nature trails, and exhibitions of natural products. The making of lantern slides, charts, displays, and the working out of specific problems will be arranged according to individual needs. Hours by arrangement. Credit, 3.
Professor Vinal.

150. Special Problems.
The Department.

155. Seminar. Credit, 1.
The Department.

200. Thesis. Credit, 10.
The Department.

COURSES FOR MINOR CREDIT ONLY

50.	Histology of Vertebrates.	Credit, 3.
51.	Microtechnique.	Credit, 2.
65, 66.	Comparative Vertebrate Anatomy.	Credit, 3.
69, 70.	Animal Parasitology.	Credit, 3.
75, 76.	Vertebrate Embryology.	Credit, 3.
80.	Ornithology.	Credit, 3.
82.	Vertebrate Zoology.	Credit, 3.
86.	Fisheries Management.	Credit, 3.

Biological Field Studies

Students electing to take special work in Natural History Methods or Biological Field Studies can satisfy requirements through proper selection of courses from the preceding offerings in Entomology and Zoology, as directed by their Major Advisor.

THE DEPARTMENT.

Floriculture

CLARK L. THAYER in Charge

COURSES FOR MAJOR OR MINOR CREDIT

A definitely outlined major or minor in floriculture is not catalogued at present but such a course may be arranged for individual students. The nature of the work to be taken up will depend upon the previous training and the type of problem desired by the candidate. Application should be made to the head of the department.

126. GARDEN MATERIALS.—Studies of specific plants or groups of plants which are used in gardening work. Questions concerning nursery methods of handling such plants are also included. Credit, 3.

150. CURRENT LITERATURE.—A review of scientific literature relating to floricultural practices, including various phases of greenhouse management, soils, fertilizers, plant propagation, insect pest and disease control, and other pertinent subjects. Credit, 3.

175. COMMERCIAL FLORICULTURE.—Problems relating to factors concerned with the commercial production of flowers and plants under glass. Opportunity is also given for study of factors concerned with methods of distribution. Credit, 3.

179. CONSERVATORY PLANTS.—A consideration of subjects dealing with plant materials which are used primarily in conservatories for display purposes and in gardens in warmer climates. Credit, 3.

190. HISTORY OF FLORICULTURE AND FLORICULTURAL LITERATURE.—Consideration of men and events that have influenced the development of floriculture. Brief survey of floricultural literature. Required of all graduates in floriculture. Credit, 3.

200. THESIS.—For candidates taking major work in floriculture. With the facilities which are now available it is possible for graduate students to undertake problems in the following phases of floriculture; propagation of plants with constant water level; propagation of plants with continuous light and constant water level; production of cutflowers and pot plants with constant water level; production of cutflowers and pot plants with automatic surface watering. Problems in other phases of floriculture may be undertaken according to the needs and desires of the individual student. Credit, 10.

COURSES FOR MINOR CREDIT ONLY

51. GREENHOUSE MANAGEMENT.	Credit, 3.
52. FLORAL ARRANGEMENT.	Credit, 3.
75. COMMERCIAL FLORICULTURE.	Credit, 3 each semester.
79. CONSERVATORY PLANTS (1948-49).	Credit, 2.
81. HERBACEOUS GARDENS AND BORDERS (1947-48).	Credit, 3.
82. SEMINAR.	Credit, 3.

Food Science

Opportunity for advanced study in the subject of foods is provided in order that qualified students may better prepare themselves to serve the numerous interests engaged in providing the consuming public with a more desirable food supply. The plan for study arranged under this major, while intended to be flexible, requires the student to confine himself largely to the graduate courses offered in the following fields: Bacteriology, Chemistry, Dairy Industry, Food Technology, and Foods and Nutrition. Courses, if properly selected, will satisfy both major and minor requirements. The proportionate contribution of each department will depend upon the student's special interests within the field but a minimum of six credits must be earned in each of the departments contributing to this major. Candidates for a degree in this major are assigned to an Advisory Committee composed of representatives of the departments concerned with the Director of the Graduate School as Chairman. This Committee will direct the student's program in the hope that a procedure may be arranged that will provide most adequate facilities for the expression of individuality. The general requirements for a degree in Food Science conform to those specified for the doctor of philosophy degree as required by several departments except that this major offers a wider range of subject matter. Students interested should consult the Director of the Graduate School.

Food Technology

Carl R. Fellers in Charge

COURSES FOR MAJOR OR MINOR CREDIT

101, 102. Special Investigations.—A series of individual problems and assignments covering plant lay-outs, process development, quality control and economics of production. Laboratory, pilot plant and library exercises.

Credit, 2-6.

The Department.

111. Heat Transfer in Food Processing.—A study of the factors affecting heat transfer in canned goods. Heating characteristics of canned foods packed in tin, glass, and other containers. Determination of thermal death points of spoilage microorganisms. Derivation of processing times and temperatures. Causes of spoilage and container failure.

One 4-hour laboratory period; one or more class or discussion periods.

Credit, 3-5.

The Department.

112. Freezing and Refrigeration.—Lay-out of cold storage plants. Practical refrigeration systems. Equipment and methods used in quick-freezing fruits, vegetables, meats, and marine products. Packaging and quality control. Home freezers and commercial frozen-food lockers.

Laboratory and class work. Credit, 2-4.

Professor Fellers.

116. Food Packaging.—A consideration of the package requirements of all types of foods and how these may be met by the use of metal, glass, paper, textile, wood, rubber and plastic material. Methods of testing for structural quality and performance, moisture and gas transmission and other properties. Study of adhesives.

Laboratory and class work. Credit, 2-4.

Assistant Professor Levine.

121. Edible Fats and Oils.—This course covers the production and uses of edible fats and oils and their chemical nature in relationship to stability. The problem of oxidation and rancidity is considered with emphasis on cause of deterioration and methods of stabilization.

One class hour; one 2-hour laboratory period. Credit, 2.

The Department.

132. UNIT PROCESSES.—Unit processes pertaining to the food industries are covered. The work includes instrumentation, temperature measurement, blanching, processing, cooling, heat transfer, fluid flow, distillation, dehydration, evaporation, filtration, comminution, deaeration and extraction. Credit, 2.

THE DEPARTMENT.

161, 162.—INDUSTRIAL PRACTICES.—Advanced laboratory and pilot plant work in the production of canned, frozen and dehydrated fruits, vegetables, meat, and fish products. The theory and practice in manufacturing jams, jellies and condiments as well as fermented, salted and smoked foods; cereal products and soups.

One 4-hour laboratory period; one class hour. Credit, 3.

Assistant Professor LEVINE.

171, 172.—SEMINAR.—Assigned readings and reports from scientific and technical literature of food technology. Special lectures and round table discussions. Credit, 1-2.

THE DEPARTMENT.

182. CONFECTIONS AND CEREAL PRODUCTS.—Candy making, maple products, sugar and fountain syrups, corn products such as starch, syrups, dextrose and their uses. Candied fruits and preserves. Flavoring essences, spices, carbonated beverages. This course also considers the principles of baking, doughs, and various prepared cereals and dry mixes.

One 4-hour laboratory period; one class hour. Credit, 3.

MR. MORSE.

191, 192. EXAMINATION OF FOOD PRODUCTS.—Factory and laboratory methods. Grades and quality factors; physical, chemical, microbiological and microscopical methods, and interpretation of results. Government and trade standards; Federal and State food regulation; mold and insect counts; plant control procedures will be stressed.

One 4-hour laboratory period; one lecture. Credit, 3.

(The second semester is a continuation of 191 with emphasis on the public health aspects of food analyses and quality control; plant sanitation. Includes lectures by outside speakers in this field.)

Professor FELLERS and MR. MORSE.

195. BIOLOGICAL ASSAY OF FOODS.—Provides laboratory training and practice in making animal and microbiological assays of food constituents, important in human and animal nutrition.

Laboratory work to be arranged. Credit, 2-5.

THE DEPARTMENT.

200. THESIS.—Research on some suitable problem in Food Technology. Facilities for nutrition research are provided by well-equipped chemical, physical, and small-animal laboratories and poultry plant. Credit, 10-30.

Closely related courses offered by other departments are:

Agricultural Engineering 80.

Animal Husbandry 53.

Dairy Industry 52, 77, 78.

Olericulture 73, 74.

Poultry Science 75.

In addition, attention is called to supporting courses in Bacteriology, Botany, Chemistry, Economics, Engineering, Nutrition, Physics and Public Health.

COURSES FOR MINOR CREDIT ONLY

51. Fruit and Vegetable Products.—This is a general elementary course covering food economics, production, distribution and processing. The applications of fundamental science to the food industries are pointed out. The laboratory exercises cover both the theory and practice of canning, freezing, and dehydration. The principles of packaging are considered. Fruit and vegetable products are prepared and graded.
One class hour; one 4-hour laboratory period. Credit, 3.
The Department.

52. Food Products and Adjuncts.—This is a continuation of 51. The laboratory work includes pickles and pickle products, maple products, citrus products, fruit syrups, soups, condiments and the preservation of meats, poultry and vegetables. The properties and uses of sugars, syrups, salt, enzymes, pectin, chemical preservatives and anti-oxidants are considered. Practice is given in the use and handling of instruments and equipment.
Two class hours; one 2-hour laboratory period. Credit, 3.
The Department.

75, 76. Food Preservation.—This is a general course in food preservation and is intended only for those who desire a survey of the field in a condensed form.
One class hour; two 2-hour laboratory periods. Credit, 3.
Mr. Morse.

95, 96. Introductory Research Methods.—The application of the fundamental sciences to food technology research. Library and laboratory research on assigned individual problems.
Hours by arrangement. Credit, 2.
The Department.

Forestry and Wildlife Management

Robert P. Holdsworth in Charge

Forestry

COURSES FOR MINOR CREDIT ONLY

51. Forest Management of Watersheds.—Admission by approval of instructor. A study of forest site—water factor relationships; the improvement of watershed forests through applied silviculture; relative values of tree species for watershed uses; forests and the quality of water supplies. Field trips to several town and city watersheds. Credit, 3.

53. Silvics.—Forest ecology as the basis for silvicultural practice.
Credit, 3.

55. Elements of Forest Mensuration.—Methods of inventorying the forest growing stock; determination of wood volume; determination of growth rates.
Credit, 3.

56. Principles of Applied Silviculture.—Forest establishment and development through silvicultural practice. Credit, 3.

57. Forest Economics and Policy.—The development of an American forest policy. The forest as a natural resource yielding measurable material forest values and social benefits. Credit, 3.

59. Forest Protection.—The principles of protecting forests from all harmful agencies. Credit, 3.

75. Forest Products.—Manufacture and distribution of forest products.
Credit, 3.

76. Wood Technology.—Structure, composition and properties of wood. A survey of technological advances in the use of wood. Credit, 3.

Wildlife Management

COURSES FOR MAJOR OR MINOR CREDIT

101.—Wildlife Administration.—A study of the political and economic organization of state and federal agencies concerned with wildlife management. Credit, 3.

102. Life History of Wild Animals.—The distribution, breeding habits, and ecological interrelationships of wild animals. Credit, 3.

103. Conservation of Natural Resources.—A survey of natural resources in relation to national prosperity. Includes soil, water, forests, grasslands, wildlife and minerals. Credit, 3.

150. Management of Wild Animals.—A study of the factors which influence wild animal abundance. Credit, 3.

181. Special Problems. Credit, 3.

200. Thesis. Credit, 10.

COURSES FOR MINOR CREDIT ONLY

70. Game Birds and Mammals.—Life history, ecology, and methods of management. Credit, 3.

71. Water Fowl and Furbearers.—Life history, ecology, and methods of management. Credit, 3.

73. Predaceous Birds and Injurious Rodents.—Life history, ecology, management, and control. Credit, 3.

74. Techniques of Management.—Includes cover mapping, census, habitat studies, and food habits. Credit, 3.

Geology and Mineralogy

L. R. Wilson in Charge

COURSES FOR MAJOR OR MINOR CREDIT

101. Optical Mineralogy.—An introduction to the theory, procedure and technique involved in the study of minerals by means of the petrographic microscope. The laboratory work will include the preparation of thin sections of minerals and rocks, together with a study of their optical properties by means of polarized light. Given in alternate years. 1948-1949. Credit, 3.
Assistant Professor Nelson.

112. Sedimentation.—A course dealing with the sources, deposition, modifying conditions, structures and environmental relationships of sediments and their consolidated equivalents. The field and laboratory study includes the collection and preparation of samples, together with their analyses. Given in alternate years. 1949-50. Credit, 3.
Assistant Professor Nelson.

113. Structural Geology.—A study of the origin of rock structures, their occurrence, and recognition. Given in alternate years. 1949-50. Credit, 3.
Professor Wilson.

121. Micropaleontology.—Principles of micropaleontology with emphasis on the use of foraminifera, ostracods, plant spores and pollen in stratigraphic investigations. Given in alternate years. 1948-49. Credit, 3.
Professor Wilson.

132. Principles of Stratigraphy.—A study of the principles of stratigraphic correlation as related to the major rock units of the United States. Given in alternate years. 1948-49. Credit, 3.
Professor Wilson.

141. Seminar.—Review of current literature or discussion of selected topics. Credit, 1.
The Department.

200. Thesis.—Research on an approved problem. Credit, 10.
The Department.

COURSES FOR MINOR CREDIT ONLY

51. Mineralogy. Credit, 3.

52. Petrology. Credit, 3.

61. Physiography and Regional Geology.—Eastern United States. Credit, 3.

62. Physiography and Regional Geology.—Western United States. Credit, 3.

63. Invertebrate Paleontology. Credit, 3.

64. Plant Paleontology. Credit, 3.

History and Sociology

History

COURSES FOR MINOR CREDIT ONLY

25. American Government.—A study of the structure and practical operation of the Federal Government. The course is based on a study of the Constitution with reference to its historical development and interpretation. The adaptation of government to new economic and social conditions is a central theme of the course, with emphasis on trends of the twentieth century. Credit, 3.
Professor Caldwell.

52. Government.—Forms and methods of governments of Europe; historic types and theories of government; progress and problems of democracy, and new reform movements in organization and administration; new tendencies towards social legislation and extension of governmental control. Credit, 3.
Professor Mackimmie.

54. The Far East in Modern Times.—After a brief and selective survey of earlier Oriental history and culture the emphasis is upon India, China, and Japan since the impact of Western technology. Considerable attention is paid to contemporary political, economic, and diplomatic problems. Given in alternate years. 1948-49. Credit, 3.
Assistant Professor Pierce.

56. The History of Modern Russia.—This course is a study of Russia in both Europe and Asia since 1800. The major topics considered are: Tsarist government and society; diplomacy and expansion; political, intellectual, and economic unrest; reforms and the Duma; World War I and the Communist Revolution; recognition and experimentation; World War II; the U.S.S.R. as an Eurasian World Power. Given in alternate years. 1949-50. Credit, 3.
Assistant Professor Pierce.

57, 58. Hispanic-American History.—A general course in the history and civilization of the Americas south of the United States. The first semester deals with the periods of exploration, organization, and revolution to 1824; the second semester, with the period of national independence and growth from 1824 to the present. Either semester may be elected independently. Credit, 3.
Assistant Professor Pierce.

59. History of the United States 1763-1865.—The development of American democracy, with emphasis upon the political story interpreted in the light of basic social, economic, intellectual and spiritual factors. Credit, 3.
Professor Cary.

60. History of the United States Since 1865.—Continuation of History 59.
Credit, 3.
Professor Cary.

61. Ancient Civilizations.—The Ancient Near East and Greece. Given in alternate years. 1949-50. Credit, 3.
Professor Mackimmie.

63. Ancient Roman History.—Given in alternate years. 1948-49.
Credit, 3.
Professor Mackimmie.

65. Nineteenth and Twentieth Century England.—Victorian society and ideals; Industrial Revolution and its effects; growth of democracy. Emphasis on social conditions and thought movements. Given in alternate years. 1949-50. Prerequisite, History 31 or 32. Credit, 3.
Professor Caldwell.

67. Stuart England.—The struggle between Crown and Parliament is treated in detail. Emphasis is also placed on social, religious, and intellectual aspects of English life in the period. Wide reading in contemporary sources. Given in alternate years. 1948-49.
Prerequisite, History 31 or 32. Credit, 3.
Professor Caldwell.

69. Europe. 1870-1918.—Internal developments of the principal countries, including political and economic changes, social unrest, and intellectual currents; the development of imperialism; a detailed study of conditions and diplomacy which led to the World War; military history of the War. Credit, 3.
Professor Caldwell.

70. Europe Since 1918.—A continuation of History 69, but may be elected independently. Approximately half of the course is devoted to international affairs, including the Peace Settlement, the development of German, Italian and Japanese aggression, and World War II. The other half of the course is a study of internal developments in the principal European nations. Credit, 3.
Professor Caldwell.

75. Medieval Europe.—Europe from the barbarian invasions to the Renaissance. Social and economic conditions, development of national monarchies, the Church and religion, medieval culture. Credit, 3.
Professor Cary.

76. The History of the Renaissance.—The later Middle Ages. The Church at the height of power. The rise of nationalities. The Italian towns. The New Learning and its relation to Art, Science, Invention, Geographical Discoveries. Spread and effects of the Renaissance. Credit, 3.
Professor Mackimmie.

81. Diplomatic History of the United States 1776-1900.—The history of American foreign policy and its basic factors to the end of the nineteenth century.
Credit, 3.
Professor Cary.

82. Diplomatic History of the United States Since 1900.—The history of the United States as a world power. Credit, 3.
Professor Cary.

91. Historical Bibliography.—Open to graduate students approved by the department. The student will be expected to know the principal secondary

works and some of the more important source collections in various fields of History. Training in the assembling of a bibliography on special topics.
Credit, 1.
The Department.

92. Seminar.—Open to graduate students approved by the department. Principles of historical criticism and research. Papers on assigned topics.
Credit, 1.
The Department.

Sociology

COURSES FOR MINOR CREDIT ONLY

51. Urban Sociology.—A comparative study of modern social conditions, social agencies, and methods of adjustment, with special reference to the city environment. Characteristics of the population, urban ecology, and problems of adjustment in the fields of housing, health, education, and recreation.
Prerequisite, Sociology 28 or its equivalent. Credit, 3.
Assistant Professor Korson.

52. Rural Sociology.—A systematic study of rural society from the standpoint of its population, institutions, standards of living, and their relation to urban society.
Prerequisite, Sociology 28 or its equivalent. Credit, 3.
Assistant Professor Korson.

53. Cultural Anthropology.—A cultural study of pre-literate and literate man, with particular reference to the development of social institutions.
Prerequisite, Sociology 28 or its equivalent. Credit, 3.
Assistant Professor Korson.

54. American Race Relations.—The social, economic and political aspects of racial problems in the United States, with particular reference to the Negro and major ethnic groups.
Prerequisite, Sociology 28 or its equivalent. Credit, 3.
Assistant Professor Korson.

61. Population Problems.—An analytical study of population trends and problems of the world. In greater detail: the origin, composition, growth, migration, and urbanization of the American population.
Sociology 28 or its equivalent. Credit, 3.
Mr. Pisani.

76. Introduction to Social Welfare.—Contemporary problems of social concern: causes of poverty; methods of caring for adult and child dependents and defectives. A consideration of public and private agency administration and techniques, and an examination of federal, state and local community programs.
Prerequisite, Sociology 28, or its equivalent; 51, 75. Credit, 3.

78. Criminology.—A study of the nature of crime and the factors underlying criminal behavior. Attention is also given to the machinery of justice in criminal behavior: the law, the courts, police enforcement, penal and correctional institutions.
Prerequisites, Sociology 28 and 75 or their equivalent. Credit, 3.
Mr. Pisani.

79, 80. Seminar.—Devoted to special problems in the field of sociology, and based on reports of student research.
Prerequisite, Sociology 28 or its equivalent. Credit, 3.
Assistant Professor Korson.

82. Sociological Theory.—An examination of the contributions of European and American writers who have concerned themselves with theories of the origin, growth, and development of human social organization.
Prerequisites, Sociology 28 or its equivalent; 53. Credit, 3.
Mr. Pisani.

Home Economics

Helen S. Mitchell in Charge

COURSES FOR MAJOR OR MINOR CREDIT

101, 102. Problems in Foods and Nutrition.—Depending on the interest and training of the individual student, research problems may be selected from such fields as vitamin, mineral, and protein metabolism of man or small animals; effect of methods of cookery on nutritive value of foods; basal metabolism; child feeding; relation of food to health. Opportunity is provided for experience in a variety of techniques, e.g., chemical, biological, and bacteriological methods of food analysis, metabolic studies, and dietary surveys. Credit, 5.

103. Advanced Nutrition—Metabolism of the Major Foodstuffs.—A study is made of energy metabolism and the metabolism of carbohydrates, fats, proteins, and related substances, their role in human nutrition, and physiological effects of dietary inadequacies. A critical evaluation of food value tables and other reference material is made. Students are expected to give special reports from current literature supplementing class discussion.
Prerequisites, Physiological Chemistry and Physiology. Credit, 3.

104. Advanced Nutrition—Minerals and Vitamins.—A detailed study is made of mineral metabolism, function in the body and the results of deficiencies. The vitamins will be discussed from the standpoint of food distribution, function, chemical nature and stability, assay methods, and result of deficiencies.
Credit, 3.

111, 112. Nutrition Seminar.—Readings, discussions and preparation of bibliographies on nutrition problems of current interest. Credit, 1.

181. Methods of Teaching Home Economics.—A study is made of general education philosophy; the application of home economics to the entire school program; development of curricula based upon student needs; exploration of instructional methods and techniques. This course gives credit toward meeting state standards for teachers. During the last month a two-hour laboratory period replaces one lecture.
3 class hours. Credit, 3.

187. Principles and Practices of Tailoring.—Emphasis is placed on handling of wool in the making of suits and coats.
One class hour; two 2-hour laboratory periods. Credit, 3.
Prerequisites, Home Economics 61 or its equivalent.

188. Applied Dress Design.—Costume design is studied by means of drawing and draping, using textures of unusual nature. Emphasis will be placed on fitting and adapting design to the figure.
Three 2-hour laboratories. Credit, 3.
Prerequisite, Home Economics 187 or its equivalent.

189. Diet Therapy.—The application of nutrition principles to diet in disease. Recent theories of dietary treatment of gastro-intestinal disorders, obesity, anemia, fevers, diabetes, food allergy, cardiovascular and biliary tract diseases are reviewed critically. Students are required to use and be familiar with current medical literature as it applies to nutritional problems in disease and at the same time openminded regarding new developments in this field. Scientific and medical terminology is emphasized. Credit, 3.
Prerequisites, Home Economics 52 or 103 and 104; Physiological Chemistry; Physiology.

193. Experimental Foods.—The testing and comparing of different food materials and methods of preparation, including advanced work in the science and techniques of cookery. Special individual problems will be studied. The course is helpful to those interested in commercial food testing and valuable

to those wishing to develop a scientific approach to the study of foods. Credit, 2.
Two 2-hour laboratory periods.
Prerequisites, Home Economics 30 and 51; Chemistry 31 and 32 and permission of the instructor.

200. Thesis.—Individual research in the field of nutrition and the preparation of an acceptable thesis reporting results and analysis of such studies. Special emphasis given to the requirement for, and utilization of, various nutrients by man and small animals. Credit, 10.
The Department.

COURSES FOR MINOR CREDIT ONLY

52. Nutrition and Dietetics.—A study is made of the fundamentals of normal nutrition including energy needs, the metabolism of proteins, carbohydrates, fats, vitamins, and minerals; and the quantitative requirements for these various essential nutrients. Laboratory work provides the further study of the composition of foods and their contribution to the diet and the relationship of the nutritive value to cost. Nutritive loss due to cooking, storage, etc., is given consideration. Credit, 3.
Three class hours, one 2-hour laboratory period.
Prerequisites, Home Economics 30, Chemistry 31 and 32 or Physiology 32.

75. Economics of the Household.—A study is made of personal and family standards of living in the modern home, the economic relations of the household, and the use of time, energy, and money as a means to influence the home situation. Credit, 3.
Three class hours.

79. Child Nutrition.—A study is made of nutritional needs from prenatal life through infancy and childhood. Methods of judging nutrition and causes and effects of malnutrition are discussed. Menus for children and measures to insure the consumption of optimal diets are put into practice with laboratory work in the nursery school. Credit, 3.
Three class hours.
Prerequisites, Home Economics 52 or 54.

80. Family Life.—A study is made of the modern family; ideals and responsibilities of the home and the individual's share in developing positive family relationships. Credit, 3.
Three class hours.

84. Problems in Home Economics.—By arrangement with the Major Adviser. An intensive application of home economics to special problems.
Two class hours; one 2-hour laboratory period. Credit, 3.

86. Child Development.—The growth and development of the child, the care of children at various ages, treatment in behavior problems, and the influence of environment in shaping personality are studied. The Nursery School provides a laboratory for this course.
Three class hours. Credit, 3.

91, 92. Institutional Foods and Management.—A study is made of the principles of organization, personnel management, the administration, food costs, operating expenses, and the special functions of the dietitian. Laboratory work is planned at the College Dining Hall and dormitories. It is expected that students will enroll for the work of both semesters. Students wishing to qualify for administrative institutional work are advised to take Economics 81.
Credit, 3.
First semester, one class hour; one 4-hour laboratory period.
Second semester, two class hours; one 2-hour laboratory period.
Prerequisite, Home Economics 51 and 52.

Landscape Architecture

Raymond H. Otto in Charge

COURSES FOR MAJOR OR MINOR CREDIT

175. Art Appreciation. **Credit, 3.**
Professor Otto.

176. Civic Art.—Studies in problems in civic art, including city planning, country planning and subdivision, public policies, and administration in park and forest recreation, and landscape conservation. Credit, 3.
Professor Otto.

177. History of Art. Credit, 3.
Professor Robertson.

178. History of Art. Credit, 3.
Professor Robertson.

179. Construction and Maintenance. Credit, 3.
Professor Blundell.

181, 182. Advanced Design. Credit, 3.
Professor Otto.

183. History of Architecture. Credit, 3.
Professor Robertson.

190. Theory.—Special studies in the history and theory of art and of landscape architecture. Credit, 3.
The Department.

191. Design.—Individual problems in any or all branches of design, including estates, parks, playgrounds, public grounds, etc. Credit, 3.
The Department.

192. Construction.—Individual problems by arrangement, including engineering, estimating, cost accounting, and methods of construction. Credit, 3.
The Department.

194. Practice.—Professional field work under supervision, conducted upon going projects as opportunity offers. Credit, 3.
By arrangement.
The Department.

196. Presentation.—Studies in drafting, pen and crayon, rendering, water coloring, etc. Credit, 3.
Professor Robertson.

197. Architecture.—Problems in architecture. Credit, 3.
Professor Robertson.

200. Thesis. Credit, 10.

COURSES FOR MINOR CREDIT ONLY

51. Mapping and Topography. Credit, 3.

52. Elements of Landscape Architecture.—Engineering details, grades, roads, drainage. Credit, 3.

53. Garden Design.—Historical styles and fundamental principles of composition. Credit, 3.
Professor Otto.

54. General Design.—A series of problems in the design of small properties, estates and parks. Credit, 3.
Professor Otto.

FOR THE DEGREE OF BACHELOR OF LANDSCAPE ARCHITECTURE

To receive the degree of Bachelor of Landscape Architecture each candidate will be required:

1. To have received the degree of Bachelor of Science or Bachelor of Arts from a reputable institution.

2. To have completed as a prerequisite 24 semester credits in technical courses in landscape architecture, substantially equivalent to the technical courses now required in the major in landscape architecture at this college.

3. In addition, to have completed in residence at this institution 30 credits in landscape architecture and closely related subjects prescribed by the department. (See Fifth Year Program below.)

4. To have maintained a standing of 70 or better in all courses of the Fifth Year.

5. To have received the unanimous approval of the faculty of the department and the usual vote of approval of the faculty of the Graduate School.

FIFTH YEAR PROGRAM

The regular program of studies for the Fifth Year, subject to minor changes dependent upon courses taken previously, is as follows.

First Semester.

Landscape Architecture 101. General Design. The Department.
Landscape Architecture 103. Ecology. Professor Blundell.
Landscape Architecture 107. Contracts, Specifications, Estimates, Costs. Professor Blundell.
Landscape Architecture 109. Landscape Sketching. (Elective) Professor Robertson.
Architecture 101. Elementary Problems. Professor Robertson.
English or other suitable subject. Assigned.

Second Semester.

Landscape Architecture 102. General Design. The Department.
Landscape Architecture 106. Landscape Forestry. Professor Holdsworth.
Landscape Architecture 110. Architectural Sketching. (Elective) Professor Robertson.
Landscape Architecture 112. Professional Practice. Professor Otto.
Architecture 102. Structural Problems. Professor Robertson.
English or other suitable subject. Assigned.

Note: Each course in this group is rated at 3 semester credits with the exception of Course 112. (1-credit). Minor deviations from this program may be made at the discretion of the department.

Languages and Literature

Any of the following courses as described and listed by number in the general College Catalogue may be selected to contribute to the requirements for a minor under any major where offerings in the Department of Languages and Literature are approved for a minor:

English.—All courses from No. 50 to No. 80 inclusive.

German.—All courses from No. 27 to No. 82 inclusive.

Mathematics

COURSES FOR MINOR CREDIT ONLY

55. Mathematics of Finance.—The mathematical principle of simple and compound interest, annuities, depreciation, valuation of bonds, insurance, building and loan associations. The development and application of aids to computation in problems arising from financial transactions. Credit, 3.
Three class hours. Assistant Professor Andersen.
Prerequisite, Mathematics 1 or 3.

60. Spherical Trigonometry and Solid Analytic Geometry.—The trigonometry of the sphere with applications to terrestrial and celestial problems. This is followed by a study of higher plane curves and the analytic representation of points, lines and surfaces in space. Given in alternate years. 1947-48.
Credit, 3.
Three class hours. Professor Moore.
Prerequisite, Mathematics 30.

62. Statistics.—The fundamental mathematical principles of statistical analysis. A discussion of averages, measures of dispersion, frequency and probability functions, correlation, random sampling. This course in conjunction with Agricultural Economics 79 should provide the student with a good understanding of the application of statistical method and the interpretation of results.
Credit, 3.
Prerequisite, Mathematics 30. Assistant Professor Boutelle.

65. Theory of Equations.—An introduction to advanced algebra. A discussion of the conditions for and methods of solving algebraic and transcendental equations; ruler and compass construction; systems of equations; determinants and matrices; symmetric functions; resultants; discriminants; invariants; the fundamental theorem of algebra. Given in alternate years. 1947-48. Credit, 3.
Three class hours. Assistant Professor Boutelle.
Prerequisites, Mathematics 29 or by arrangement.

66. Introduction to Higher Geometry.—A study of various methods employed in the modern treatment of geometry of points, lines, and conics. Such topics as homogeneous point and line coordinates; infinite elements; harmonic division; groups of transformations and their invariants; and the elements of projective and other geometries, will be considered. Given in alternate years.
1947-48. Credit, 3.
Three class hours. Assistant Professor Andersen.
Prerequisite, Mathematics 3 or 4 or by arrangement.

71. Vector Analysis.—The algebra and calculus of vectors. Applications to physics and other fields will be considered. Given in alternate years. 1948-49.
Credit, 3.
Three class hours. Assistant Professor Andersen.
Prerequisites, Mathematics 30; Physics 26.

72. History of Mathematics.—A study of the great agencies which have developed progress in mathematics. Desirable for students planning to teach mathematics. Given in alternate years. 1948-49.
Three class hours. Credit, 3.
Prerequisite, Mathematics 30. Professor Moore.

91, 92. Advanced Calculus and Differential Equations.—A course devoted to the topics of the calculus more advanced than those encountered in Mathematics 29 and 30 such as series, expansion of functions, envelopes, partial differentiation, and multiple integrals. This work is followed by a study of differential equations, a subject which dominates the field of applied mathematics.
Three class hours. Credit, 3.
Prerequisite, Mathematics 30. The Department.

Olericulture

GRANT B. SNYDER in Charge

COURSES FOR MAJOR OR MINOR CREDIT

150. CURRENT LITERATURE.—A review of scientific papers relating to research work in Olericulture as affecting various cultural practices both in the greenhouse and in the field. Credit, 3.
THE DEPARTMENT

151. NUTRITION OF VEGETABLE CROPS.—Readings, laboratory and greenhouse work related to problems of soil management and fertilization practices.
Credit, 3.
THE DEPARTMENT.

152. CULTURAL PROBLEMS.—A study of fundamental factors such as soil moisture, light, humidity and temperature as they influence cultural practices.
Credit, 3.
Professor SNYDER.

175. ADVANCED SYSTEMATIC OLERICULTURE.—A critical study of vegetable types as to nomenclature, identification, and classification. Credit, 3.
Professor SNYDER.

181. SEMINAR.—A study of research work related to Olericulture. Each student will be required to present papers on assigned readings. Credit, 1.
Professor SNYDER and the DEPARTMENT.

200. THESIS.—Research on some suitable topic relating to a specific phase of Olericulture. Credit, 10.
Professor SNYDER and the DEPARTMENT.

COURSES FOR MINOR CREDIT ONLY

25. GENERAL OLERICULTURE.	Credit, 3.
51, 52. PRINCIPLES OF OLERICULTURE.	Credit, 3.
73. 74. MARKETING PRACTICES.	Credit, 3.
75. SYSTEMATIC OLERICULTURE.	Credit, 3.
76. GREENHOUSE CROPS.	Credit, 3.
78. COMMERCIAL OLERICULTURE.	Credit, 3.

Philosophy

COURSES FOR MINOR CREDIT ONLY

61. FUNDAMENTALS OF PHILOSOPHY.—A study of the various types of contemporary philosophy with emphasis upon evaluation and criticism.
Credit, 2.
Professor GLICK.

62. HISTORY OF PHILOSOPHY.—A study of the development of Western thought in general from the time of the early Greeks up to the recent past.
Credit, 2.
Professor GLICK.

63. LOGIC.—A study of the structure of thought from the standpoints of gaining and evaluating knowledge. Attention is also given to the clearness of expression and effectiveness of conviction. Credit, 2.
Professor GLICK.

64. ETHICS.—A critical study of the fundamental ethical theories and practices both historical and contemporary, with an attempt to evaluate each in the light of present knowledge and social practices. Credit, 2.
Professor GLICK.

65. PHILOSOPHY OF EDUCATION.—A criticism and evaluation of the various theories and practices in education viewed in the light of historical perspective and present-day science and theory. Credit, 2.
Professor GLICK.

97. SEMINAR IN PHILOSOPHY.—Arranged to include phases of philosophy not covered in the outlined courses and also to provide opportunity for greater specialization than the outlined courses afford. Credit, 2.
Professor GLICK.

98. PROBLEMS.—The subject matter centers around logic and deals primarily with various methods of investigating truth. Credit 2.
Professor GLICK.

Physical Education

HAROLD M. GORE IN CHARGE

COURSES FOR MAJOR OR MINOR CREDIT

MEN

Major work in Physical Education is prescriptive and courses are arranged in consultation with the Head of the Department. Course selection is dependent upon the following objectives: physical education; health and safety education; athletics and teacher-coaching, or physical recreation.

142. WATER FRONT PROGRAMS AND AQUATIC RESEARCH. Credit, 3.
Professor GORE, Assistant Professor ROGERS.

144. PHYSICAL EDUCATION TESTS AND MEASUREMENTS. Credit, 3.
Assistant Professor DERBY.

145. PHYSICAL EDUCATION HISTORY AND TRENDS. Credit, 3.
Professor GORE.

153. ELEMENTARY SCHOOL PHYSICAL EDUCATION. Credit, 3.
Assistant Professor DERBY.

154. SECONDARY SCHOOL PHYSICAL EDUCATION. Credit, 3.
Assistant Professor DERBY.

156. PHYSICAL EDUCATION ORGANIZATION AND ADMINISTRATION. Credit, 3.
Professor HICKS.

171, 172. SPECIAL PROBLEMS IN PHYSICAL EDUCATION. Credit, 3.
Professor GORE and the DEPARTMENT.

173. RECREATION ADMINISTRATION AND ORGANIZATION. Credit, 3.
Professor GORE.

174. RECREATIONAL LAND USE. Credit, 3.
Professor GORE.

175. HEALTH AND SAFETY EDUCATION. Credit, 3.
Professor GORE.

176. ANATOMY GENERAL. Credit, 3.
Professor RADCLIFFE.

178. ANATOMY APPLIED. Credit, 3.
Professor RADCLIFFE.

190. SEMINAR. Credit, 3 each semester.
Professor GORE and the DEPARTMENT.

200. THESIS. Credit, 8.
Professor GORE and the DEPARTMENT.

Physics

COURSES FOR MINOR CREDIT ONLY

51, 52. Magnetism, Electricity, Photo-Electricity, Thermionics and Applications.—Course 51 deals largely with direct currents; Course 52 with alternating currents, applications of thermionics, and photo-electricity. These courses are planned to give the student a good training in theory and methods of measurement in the subjects indicated, which are useful in many fields of investigation. Modern methods are stressed and instruments of precision are used. Credit, 3.
Two class hours; one 2-hour laboratory period. Professor Powers.
Prerequisites, Physics 26 and Mathematics 29 for Course 51;
Physics 51 for Course 52.

55, 56. Mechanics.—Development of the fundamental concepts of dynamics with applications to particles and rigid bodies in translation and rotation. One laboratory period may be substituted for one class hour. Credit, 3.
By arrangement. Assistant Professor Ross.
Prerequisites, Physics 26; Mathematics 30.

60. Sound and Acoustics.—A study of the vibrations, vibrating bodies, coupled systems, sound structure, and acoustic properties. The work will include many applications of sound to technical and commercial fields. Credit, 3.
Three class hours. The Department.
Prerequisite, Physics 55 or its equivalent.

61, 62. Heat and Thermodynamics.—A study of heat exchanges and energy changes due to heat in systems of matter. The subject material and experimental methods are useful in other branches of science. Given in alternate years. 1949-50. Credit, 3.
Two class hours; one 2-hour laboratory period Associate Professor Alderman.

63, 64. Optics.—An intermediate course in the theory of light. Work in geometrical and physical optics is done. Precision instruments are used in the laboratory. Given in alternate years. 1948-49. Credit, 3.
Two class hours; one 2-hour laboratory period Associate Professor Alderman.
Laboratory hours by arrangement.

75, 76. Advanced Experimental Work in Selected Topics.—These courses are largely experimental and the subject matter is adapted to the needs of the individual student. The research viewpoint is emphasized. The class hour is used for a course in precision of measurements. Credit, 3.
One class hour; two 2-hour laboratory periods. Professor Powers.
Prerequisites, Physics 51, 52 or 55, 56 or 63, 64; Mathematics 29 and 30.

85, 86. Modern Physics.—Typical subjects studied are theories of the atom, radiation, quantum theory; spectra, X-ray analysis, nuclear reactions. Given in alternate years. 1949-50. Credit, 3.
Three class hours. Professor Powers.
Prerequisites, Physics 51, 62 and 64 or equivalent; Mathematics 29 and 30.

95, 96, Electronics.—Given in alternate years. 1948-49. Credit, 3.
Three class hours. Professor Powers.
Prerequisites, Physics 51, 52; Mathematics 29, 30.

Physiology

——— in Charge

COURSES FOR MAJOR OR MINOR CREDIT

170. Problems and Applied Physiology.—Arranged for major credit depending upon the previous training of the student in physiology. It may be considered from the standpoint of animal or human physiology, according as the student may elect.
Hours by arrangement. Credit, 5.

171, 172. Seminar.—Lectures or reports on current physiological literature. Credit, 3.

200. Thesis.—A physiological problem related to animal or human life. Planned according to an arrangement best suited for the progress and completion of the research work. Time and credit by arrangement. Credit, 10.

COURSES FOR MINOR CREDIT ONLY

75. Physiology.—This is a continuation of course 32. Physiology of nutrition, including diet, calorimetry, energy exchange, and basal metabolism followed by work on the physiology of elimination. Studies on lymphatics and ductless glands will be included. This course is especially planned to further physiological applications for students in nutrition, bacteriology, and the biological sciences.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Physiology 32.

76. Physiology.—This is a continuation of course 75 and is planned to make demonstrations in advanced neuro-muscular physiology, respiration, circulation and endocrinology. Special attention will be given to the physiology of the special senses, such as taste, touch, sight and hearing.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Physiology 75.

77. Physiology.—This course is planned for those students who have studied organic chemistry and physics. It will be of service to all students in the biological sciences. The discussions and laboratory demonstrations will concern the nature of the processes underlying vital phenomena which are common to most living matter. It will deal exclusively with the fundamental principles which govern activities and life of animals and human beings.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisites, Physics 25 and 26; Chemistry 51 and 52.

79. Physiology.—This is an advanced course arranged only for students who are familiar with physiological technique. The course will deal with the physiology of the special senses such as taste, smell, touch, sight and hearing.
2 class hours; 1 2-hour laboratory period. Credit, 3
Prerequisites, Physiology 32.

80. Problems in Applied Physiology.—In this course will be considered physiological methods used in the arts and industries, studies on physiological efficiency, methods applied in the study of tissue function, physiological standards for military and industrial fitness, together with experiments on human, animal, and plant dynamics.
2 class hours; 1 2-hour laboratory period. Credit, 2.
Given in alternate years.

Pomology

R. A. Van Meter in Charge

COURSES FOR MAJOR OR MINOR CREDIT

102. Pomological Research.—A critical study of methods and interpretation of results of past and current research work in pomology. Such topics as the following may be selected:

1. Orchard soils and soil management.
2. Pruning of fruit plants.
3. Nutrition of fruit plants.
4. Plant hormones.
5. Fruit bud differentiation.
6. The setting, growth, and ripening of fruits.
7. The genetics and breeding of fruit plants.
8. Climatology, winter injury, and hardiness.
9. Propagation of fruit plants.
10. Pest control on fruit plants.
11. Fruit storage.

Maximum credit per topic, 3.

103. Advanced Laboratory Work.—Each student will be required to become familiar with the research work of the department and to have a share in it. So far as this has value as graduate work, he will receive credit.
Credit, 5.

104. History of Pomology.—The men, institutions, and other influences that have contributed to the development of the science and art of pomology.
Credit, 2.

105. Advanced Systematic Pomology.—An intensive study of leaf and general tree characters of nursery and orchard trees with reference to identification and the relationship of varieties. This work should be undertaken in summer.
Credit, 5.

151. Plant Genetics.—A study of the principles of genetics with emphasis on their application to plants.
Credit, 3.
Professor French.

152. Advanced Plant Breeding.—An advanced study of genetic topics peculiar to plants, also the methods and problems of the plant breeder. Laboratory work in genetic analysis and the breeding of plants.
2 class hours, 1 2-hour laboratory period.
Credit, 3.
Professor French.

181. Special Problems.—Qualified students may carry on advanced study on special topics or undertake such original investigation as time and available material will permit.
Hours by arrangement.
Credit, 2 each semester.
Professor French.

182. Plant Cytological Technique.—The methods of cytology useful to the plant geneticist.
2 2-hour laboratory periods.
Credit, 2.
Professor French.

200. Thesis.—Each student will be required to carry out an original investigation of an assigned problem. In planning, executing and interpreting the data of this problem he must show marked ability. The results are embodied in a thesis to be passed upon by the Department and the Graduate Staff.
Credit, 10.

COURSES FOR MINOR CREDIT ONLY

26. Small Fruits.—A study of the growing of raspberries, blackberries, strawberries, currants, blueberries, and grapes, dealing with such questions as varieties, selecting a site for the plantation, soils, fertilizers, pruning, harvesting, and marketing.
2 class hours, 1 2-hour laboratory period. Credit, 3.

53. General Pomology.—A study of the most improved practices in fruit production including such questions as the selection of orchard sites and soils, laying out and setting the orchard, the structure and growth of fruit plants, the bearing habits, pruning and training of fruits, fertilizers, pollination, and winter injury.
2 class hours, 1 2-hour laboratory period. Credit, 3.

56. Spraying.—(*a*) Spraying materials, their composition, manufacture, and preparation for use; the desirable and undesirable qualities of each material; formulas used, costs, and tests of purity. (*b*) Spraying machinery, including all the principal types of pumps, nozzles, hose and vehicles; their structure and care. (*c*) Orchard methods in the application of the various materials used, with the important considerations for spraying each fruit and combating each orchard pest. This course is designed especially to familiarize the student with the details of pest control in the orchard.
1 class hour, 2 2-hour laboratory periods. Credit, 3.

75. Systematic Pomology.—A study of the more important kinds and varieties of fruits grown in the United States, their relationships and nomenclature. Particular emphasis is placed on the identification, classification and value of varieties, including a study of the characters of the plant as well as the fruit. Given in alternate years.
1 class hour, 3 2-hour laboratory periods. Credit, 4.

77. Commercial Pomology.—The picking, handling, storing, and marketing of fruits, including a discussion of storage houses, fruit packages, and methods of refrigeration, grading and packing. This course also considers the leading American and foreign centers of fruit production as they affect our own fruit industry through competition here and abroad. Given in alternate years.
2 class hours, 1 2-hour laboratory period. Credit, 3.

81, 82. Advanced Pomology.—A consideration of the scientific principles governing the growth and behavior of fruit-bearing plants.
Special attention is given to a critical survey of the more important research work in the field of Pomology.
2 class hours, 1 2-hour laboratory period. Credit, 3.
Prerequisite, Pomology 53.

83. Seminar.—Advanced study of problems relating to fruit production. The seminar involves the entire department as well as all advanced students. Each member is assigned subjects for frequent reports. Subject matter is never repeated and graduate students are expected to take part in the seminar through the entire period of residence.
1 class hour. Credit, 1 each semester.

Poultry Science

F. P. Jeffrey in Charge

COURSES FOR MAJOR OR MINOR CREDIT

101. Science of Poultry Husbandry.—A review of the entire field of poultry literature, including books, bulletins, journals and other technical publications to furnish a comprehensive background of the present status of knowledge in poultry science. Written reports will be required. Credit, 3.

102. Poultry Research Problems.—A critical review of research, experimentation, and demonstration that has been carried out by workers at the various stations in this and other countries. A study of poultry problems in foreign countries together with the outstanding needs in the United States with a view to discovering the needs for fundamental research. Credit, 3.

103, 104. Advanced Genetics.—A lecture course offered during both semesters dealing with the experimental study of genetics in relation to both plant and animal breeding. The course is open to qualified graduate students in any line of study. Credit, 3.

105. Genetics and Evolution.—A series of lectures dealing with the genetics of evolution. The course is designed to follow Course 103-104 and to stress the relation of evolution to genetics. The course is open to all qualified graduate students. Credit, 3.

106. Research in Breeding.—Students may carry on definite experiments in poultry breeding. All research work will be confined to the field of pure and applied genetics. Problems concerned with both physical and physiological characters may be studied. Credit, 5.

107. Interpretation of Experimental Data.—This course includes a statistical analysis of experimental data in various phases of research work. Attention is given to the application of the more important statistical treatments in making interpretation of experimental results in breeding, nutrition, and other fields. Credit, 3.

108. Avian Behavior.—This course is designed as a study in avian behavior to determine the nature and persistency of the order of dominance in the domestic fowl and to relate these to certain physiological reactions. Credit 2.

Professor Sanctuary.

109. Avian Genetics.—This course is concerned entirely with Class Aves. It is the aim to cover the genetics of different types of birds as well as the domestic fowl in a series of lectures. Genetics 103 and 104 are required as prerequisites. Credit, 3.

110. Methods of Research in Poultry Science.—This course is designed to consider different methods of research in poultry science with the advantages and disadvantages of each. Attempts will be made to develop more constructive and exact methods of procedure. Credit, 2.

200. Thesis.—Research work may be carried out only in breeding. Originality and thoroughness are particularly emphasized. Credit, 10.

COURSES FOR MINOR CREDIT ONLY

78. Seminar. Credit, 3-4.

Professor Jeffrey.

Psychology

Claude C. Neet in Charge

COURSES FOR MAJOR OR MINOR CREDIT

151. Experimental Psychology.—A survey of important experiments in psychology. Special attention is given to the techniques of experimentation and to the apparatus employed. Credit, 3.

Mr. Feldman.

152. Physiological Psychology.—This is a study of the physiological correlates of behavior. Special attention is given to sensory, motor, and association processes Credit, 3.

Mr. Feldman.

155. EDUCATIONAL PSYCHOLOGY.—The principles of psychology are applied to the solution of educational problems. Emphasis is placed on the evaluation of educational theory and practice in light of psychological points of view.
Credit, 3.
Assistant Professor VALLANCE.

163. SOCIAL PSYCHOLOGY.—A study of the activities of individuals in relation to others. Some of the topics considered are social movements, group conflict, propaganda, language, imitation, suggestion, and methods of measuring social behavior. Credit, 3.
Assistant Professor VALLANCE.

177. NEURAL CORRELATES OF BEHAVIOR.—A detailed study of the neuroanatomical relationships of sensory-motor systems. Emphasis is placed upon the major fiber systems and their role in behavior. Credit, 3.
MR. FELDMAN.

182. INDIVIDUAL INTELLIGENGE TESTING.—The nature and theories of intelligence are considered. This is followed by a critical evaluation of individual type intelligence tests. Practice in administration, scoring and interpretation of the most important tests is given in the laboratory. Credit, 3.
MISS PHILLIPS.

184. ABNORMAL PSYCHOLOGY.—The etiology, symptoms, and therapy of behavior abnormalities are studied. Some of the disorders dealt with are speech abnormalities, emotional extremes, the seizure states, feeblemindedness, and neuroses and the psychoses. Credit, 3.
Professor NEET.

186. INDUSTRIAL AND BUSINESS PSYCHOLOGY.—The course aims to develop an understanding of the principles and techniques involved in employment, in personnel problems, and in the treatment of problems of work, fatigue, and motivation. Credit, 3.
Assistant Professor VALLANCE.

188. PSYCHOLOGY OF GUIDANCE.—A study and evaluation of psychological principles, tests and procedures involved in different types of guidance.
Credit, 3.
MISS PHILLIPS.

190. CONTEMPORARY THEORIES OF PSYCHOLOGY.—This course deals with the history and theories of psychology. Each of the different theories is discussed and evaluated. Credit, 3.
Professor NEET.

191. CHILD PSYCHOLOGY.—A study of child and adolescent behavior. Principles of behavior development, habit formation, motivation, and personality adjustment are stressed. Credit, 3.
Professor NEET.

192. CLINICAL PSYCHOLOGY.—A consideration of the techniques and methods involved in the diagnosis and therapy of behavior disorders. Clinical testing, counseling, and psychotherapy are major topics of the course. Credit, 3.
Professor NEET.

193. MENTAL TESTS.—A critical study and evaluation of psychological tests with emphasis on those suitable for group and clinical purposes. Credit, 3.
MISS PHILLIPS.

194. MENTAL HYGIENE.—A study of the development of personality habits and individual mental health. Some of the topics treated are: origin of behavior, factors of learning in adjustment, emotional control, behavior problems, the neuroses, and the applications of mental hygiene. Credit, 3.
Professor NEET.

195. Problems in Psychology.—Affords an opportunity for study in any pecial field of psychology not considered in other courses. Credit, 2.
The Department.

196. Statistics in Psychology.—A study of statistical procedures appliable to the analysis of psychological problems and data. Credit, 3.
Professor Neet.

200. Thesis. Credit, 10.
The Department.

Romance Languages

Charles F. Fraker in Charge

COURSES FOR MAJOR OR MINOR CREDIT

101, 102. An Introduction to Romance Philology.—Studies in the laws of vowel and consonantal change; the provenience of words. Given in alternate years. 1949-50. Credit, 3.
Professor Fraker.

103, 104. Old French Readings.—Early monuments of French Literature; the Arthurian and Carolingian Cycles. Given in alternate years. 1948-49.
Credit, 3.
Professors Fraker and Goding.

105, 106. Old Spanish Readings.—Early monuments of Spanish Literature; The *Cronicas* and the *Poema del mio Cid*. Given in alternate years. 1948-49.
Credit, 3.
Professor Fraker.

107, 108. The Renaissance, Rabelais, Montaigne and others.—Given in alternate years. 1949-50. Credit, 3.
Professor Goding.

109, 110. Contemporary French Literature.—Given in alternate years. 1949-50. Credit, 3.
Assistant Professor Clark.

111, 112. French Literature of the Eighteenth Century.—Given in alternate years. 1949-50. Credit, 3.
Professor Goding.

121, 122. Problem Course.—Independent study of some phase of linguistics or literature. Credit, 3.
The Department.

129, 130. French Classicism.—A survey of the Classic period, with readings from representative works. Credit, 3.
Prerequisites, French 7 and 8 or their equivalent. Professor Fraker.

131. French Romanticism.—A detailed study of the Romantic period. Readings from Hugo, de Vigny, Lamartine, de Musset, and others. Conducted in French. Credit, 3.
Prerequisites, French 7 and 8 or their equivalent. Professor Goding.

132. French Realism.—A detailed study of the Realistic period and the modern writers. Readings from Balzac, Flaubert, Stendahl, Loti, Daudet, Anatole France, and others. Conducted in French. Credit, 3.
Prerequisite, French 31. Professor Goding.

171. Voltaire.—A study of the eighteenth century through the life and works of Voltaire. Credit, 3.
Prerequisites, French 7 and 8 or their equivalent. Professor Fraker.

172. French Lyric Poetry.—A study of the French lyric poets, including excerpts in modern translation from the Middle Ages and from the various modern improvements through the nineteenth century. Collateral readings and reports. Credit, 3.
Prerequisites, French 7 and 8 or their equivalent. Professor Fraker.

180. Advanced Grammar and Composition.—A thorough review of grammar, pronunciation, and the phonetic method. Credit, 3.
Professor Goding.

181. The Romantic Period.—Readings from representative authors; written and oral composition. Credit, 3.
Prerequisites, Spanish 7 and 8. Professor Fraker.

182. The Modernists.—Dario, Nervo and their contemporaries; composition and conversation. Credit, 3.
Prerequisites, Spanish 7, 8, and 29. Professor Fraker.

183, 184. The Golden Age.—Readings from Cervantes, Lope de Vega, Calderon, Garcilaso and others. Composition and conversation. Credit, 3.
Prerequisites, Spanish 7 and 8. Professor Fraker.

200. Thesis. Credit 10.

Veterinary Science

COURSES FOR MINOR CREDIT ONLY

75. Comparative Veterinary Anatomy.—The structures of the horse, cow, sheep, and pig are studied.
3 lectures a week. Credit, 3.

76. General Veterinary Pathology.—The principles of pathology and their application as related to diseases of domesticated animals are considered.
3 lectures a week. Credit, 3.

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"No other human occupation opens so wide a field for the profitable and agreeable combination of labor with cultivated thought, as agriculture. I know nothing so pleasant to the mind as the discovery of anything that is at once new and valuable—nothing that so lightens and sweetens toil as the hopeful pursuit of such discovery. And how vast and how varied a field is agriculture for such discovery. The mind, already trained to thought in the country school or higher school, cannot fail to find there an exhaustless source of enjoyment. Every blade of grass is a study; and to produce two where there was but one is both a profit and a pleasure. And not grass alone; but soils, seeds, and seasons; hedges, ditches and fences; draining, drouths, and irrigation; plowing, hoeing and harrowing; reaping, mowing and threshing; saving crops, pests of crops, diseases of crops, and what will prevent or cure them; implements, utensils, and machines, their relative merits, and to improve them; hogs, horses, and cattle; sheep, goats, and poultry; trees, shrubs, fruits, plants, and flowers; the thousand things of which these are specimens—each a world of study within itself."

— ABRAHAM LINCOLN —
From address at Wisconsin State Fair,
Milwaukee, Wisconsin, September 30, 1859.

Note: President Abraham Lincoln signed the bill known as the Morrill Act, sponsored by Senator Justin Morrill of Vermont, in 1862 in the midst of the great Civil War. This law established agricultural colleges in every state of the country under federal aid.

Massachusetts accepted the provisions of this Act in 1863, indicating that "the leading object of the College shall be to teach subjects relating to agriculture and the mechanic arts so as to promote liberal and practical education."

Thus was born our modern system of agricultural education which is contributing so greatly to the health and welfare of this nation and of the world.

Bulletin
UNIVERSITY OF MASSACHUSETTS

Stockbridge School of Agriculture
1948-1949

The University of Massachusetts is both a State University and a Land Grant College and as such has been established by Acts of Congress and of the Legislature of Massachusetts.

The two year course in practical agriculture at The University of Massachusetts is known as The Stockbridge School of Agriculture, named after an early president of the University. Included herein are descriptions of the various courses offered, information concerning expenses, enrolment, regulations, etc. In the back of catalogue will be found forms for application and certificate of citizenship.

The University reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue.

UNIVERSITY BULLETIN
Amherst, Massachusetts

VOLUME XXXX JUNE, 1948 NUMBER 3

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FOREWORD

Since 1918 the University of Massachusetts has been providing for its citizens a two-year vocational program of courses covering the principal fields of technical and applied agriculture and horticulture. This past year the total enrolment in the Stockbridge School of Agriculture was 423 including 313 veterans. The Freshman class was limited to 255 students.

The Place of Agriculture in Education.—By John Chandler, Commissioner of Agriculture for Massachusetts. Excerpts.

"I am sure you join with me in marvelling at the tremendous strides which have been made in agriculture during the last twenty-five years. When I started farming, thirty-five years ago, we were farming just about the way our fathers and grandfathers had farmed for hundreds of years. We were following methods and practices handed down from father to son, ways which had proved practical by trial and error. To be sure there had been a few advances, the steel plow, the mowing machine, the binder and the ensilage cutter and crude manure spreaders had come into use. Now only a short generation later we look back on those early days and marvel at the advances which have taken place in plant and livestock breeding, in mechanization made possible by the internal combustion engine and electric power, in chemistry as expressed in new fertilizer and spray materials, in the science of bacteriology, in cultures and tillage practices, and in the physical methods of caring for soils, known as soil conservation practices.

I can remember hoisting hay by the forkful on to endless loads and mowing it away by hand in the smothering heat of dusty haylofts; doing all the milking by hand by the light of a lantern; driving the cows out to watering troughs in the yard, winter and summer; cutting ensilage corn with a corn knife and gathering it in armfuls and placing it on wagons to draw to the silo. I can remember cutting ice in the winter and bucking it into the ice house, digging it out every day all summer to float in a tank to keep the milk sweet; the endless fixing of fences; shovelling out manure in the winter on a little sled body and spreading by hand on the snow; driving every day through snow or mud over dirt roads in an express wagon three miles to a railroad station carrying eight-quart cans of milk which went to some milk dealer in a distant city, who paid me what he thought he could get away with—usually 2½ to 3 cents per quart; walking behind a plow, and then,— Oh glorious day, riding a sulky plow—bumping over the stones, and walking all day in the dust behind one kind of a harrow or another. Clearing out stone walls with horses, a drag, crowbars—a very slow and expensive undertaking.

All these things are just back around the corner. It is almost incredible how we have advanced. No longer are we farmers bowed down by never-ending drudgery, and too tired to raise our eyes to the new horizons ahead. Today the farmers of Massachusetts are using their minds and their ingenuity in growing better and larger crops, with less and less labor. I believe we are right at the start of the greatest renaissance our agriculture has ever experienced. Younger men are stepping in to operate our farms, using their brains and imaginations as well as their strong bodies. They are expanding and improving their farms as never before. They are building into their enterprises greater stability with security for themselves and their families. Of all the classifications of industries in our State today—farming is the most up-and-coming—is advancing the fastest, and offers the greatest opportunity for young men endowed with adventurous and pioneer spirit.

The land is the same good land we have always had, but we are learning to improve and expand our acres with the help of modern heavy equipment so that our little old farms, cut up into small fields surrounded by stone walls and bushes, are beginning to blossom with large fields suitable for the use of modern equipment, so that in the next few years, I believe, our countryside will be dotted with as efficient farms as there are anywhere in the world. Add to this the fact that we operate in the midst of a dense population, with the finest markets anywhere at our very doors. Is it any wonder that the young men are beginning to see the prospects ahead and that a pioneer spirit is abroad in our countryside? * * *

A hundred, or a thousand years ago for that matter, agriculture was a trade and was not considered a fitting subject for intellectual development. Almost everybody was a farmer back home anyway and was well aware of the relation between food and life. The facts of life were all about them. But since that day the industrial era has changed our civilization as we know it. Now a fortunate few raise all the food for the many. Most everybody is so far removed from the soil, particularly in industrial regions like ours, that they have lost track of one of the great fundamentals of existence. An educated man should understand the Mendelian Law, how plants grow, and what makes a good soil; he should have a comprehension of the effect of soil on civilization, and of the arguments for and against the Malthusian theory.

The purpose of an academic education is not the imparting of information but rather the discipline of the mind together with an acquaintance with some of the eternal truths which are the foundation of our civilization. My contention is that the study of the fundamental axioms of agriculture is as sound a basis for mind training as any of the subjects traditionally found in a liberal arts course —and most necessary in this day and age, lest our so-called educated man lose touch altogether with an important source of our civilization. What the farmer of yesterday, today, and tomorrow needs to know are the underlying principles of agriculture and enough practical skills in the field so that he will be able to use the tools of his calling efficiently. And so I come up with the proposition that an understanding of the fundamental principles of agriculture is an essential part of a liberal education. * * * *

To sum up then—the type of farmers, together with farming, in Massachusetts is changing rapidly under the stimulus of impelling advancements in science and engineering. No longer should farming be considered a trade, in which skill is the only desirable teaching objective. What appears to be needed *today* and *tomorrow* is a trained mind and a broad understanding of the fundamentals of agriculture and enough vocational training so that the beginner will have adequate knowledge of farming procedures to make a creditable start. From then on he is on his own. And, finally, that these principles of Agriculture have a place in cultural education."

New Program for Post-War Period.—Today The Stockbridge School of Agriculture is organized and equipped to meet the needs of the discharged or disabled service man or woman, and of non-veteran citizens so far as housing and instruction facilities may permit.

Courses described in this catalog will be of particular value to veterans who have a sound reason for going into an agricultural business, and who fully realize the usual risks and difficulties that are bound to arise. To more fully acquaint them with both the opportunities and the limitations involved,—and the non-veteran needs the same information,—we are including here an excellent statement taken from the booklet "Agricultural Facts About Massachusetts" published by the Massachusetts Development and Industrial Commission. This was prepared by Louis A. Webster, a former Acting Commissioner of Agriculture of Massachusetts, 1942-44, and at present Director of Markets of the Massachusetts Department of Agriculture.

"**Living on the Land and off the Land.**—Farm living in Massachusetts, as elsewhere, offers an opportunity to live on the land in nature's environment and in a position to subsist to a large degree on crops of one's own production, or literally, "off the land".

Massachusetts also offers an active, though exacting, market for over a hundred million dollars worth of farm products annually. These products are now grown on 30,000 farms, covering 400,000 acres of cultivated land and a total area of 2,000,000 acres.

It should be pointed out at once that farm products, whether they are for home use or are produced by the carload, are not by any means manna from heaven. Successful production is the result of constant expenditure of physical and mental toil and the accumulation of generations of experience.

In spite of the industrialization of our State, the war years saw the greatest production of food in the whole three centuries of our experience. About 1,750,000,000 pounds of food are produced annually from the soil of Massachusetts. This fills 20% of the food needs of our people.

The soil of New England is not as easy to work on the average as in more typically agricultural sections of our country; but that very difficulty of operation has bred a determination to keep intact our heritage. We have probably lost less land by erosion and soil depletion than the nation has as a whole. For generations we have had to feed our soil, so that fertilization is a part of our farm practice and we are prepared to maintain and increase our soil fertility.

Due to our proximity to markets and to the size of our farms, it is naturally unprofitable to raise grain, beef, pork or fiber crops in large volume. It is desirable and necessary for us to specialize in the intensive production of such valuable crops as milk, eggs, fruit, vegetables and flowers. The crops we grow are the so-called "protective foods" that maintain our health and stamina in a vigorous climate and in an active and aggressive social order.

Massachusetts has some of the best purebred dairy herds in the world. We have some of the heaviest producing poultry flocks in existence; and our production of eggs has increased from 20,000,000 dozen in 1930 to 62,000,000 dozen in 1943. The Massachusetts apple crop totals about 3,500,000 bushels, which is just enough for our own use. 500,000 barrels of cranberries a year are grown in the Bay State, accounting for 60% of the nation's total. Massachusetts vegetable growers, large and small, produce 17,000,000 bushels of vegetables yearly. Opportunities for expansion will increase when thousands of local growers produce crops for immediate freezing in hundreds of thousands of private freezers.

Thousands of acres of Massachusetts land in the Connecticut Valley, on Cape Cod and in scores of other localities have only been scratched in their possibilities for food production. Massachusetts soil is ready to add stability to the economy of thousands of part-time farmers, and to produce thousands of tons more food for our four and a third million people.

Agricultural effort has been well repaid in Massachusetts, but wealth from the soil is not released without great skill and effort. The soil is a faithful silent partner but demands aggressive and constant cooperation."

AGRICULTURE IS BIG BUSINESS

Few farm people and comparatively few other citizens realize the importance of agriculture in this commonwealth of ours according to Willard A. Munson, director of the University of Massachusetts Extension Service.

Massachusetts is an urban, industrial state; 90 per cent of its people live in urban centers. However, 95 per cent of the land area is rural countryside. Here 10 per cent of the population lives, but only about one-third of these are actually engaged in agriculture. In spite of this small number agriculture is a big business. It is the third largest industry in the state, outranked only by leather and textiles. The farm industry in Massachusetts represents an investment of over $330,000,000 and in 1946 produced a gross income of approximately $175,000,000.

In addition to the 3 per cent engaged directly in agricultural production 3 to 4 per cent are in allied industries. In other words these people are serving farmers by obtaining farm supplies and services, and by providing marketing facilities. This means approximately 100,000 jobs with 3,000 to 5,000 replacements each year in order to maintain the industry.

CALENDAR

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

1948

October 4, Monday	Freshman Registration
October, 5, Tuesday	Senior Registration
October 6, Wednesday, 8:00 A.M.	First Semester begins for Freshmen and Seniors
October 6, Wednesday, 11:00 A.M.	Opening Convocation
October 12, Tuesday	Holiday, Columbus Day
November 11, Thursday	Holiday, Armistice Day
November 24-29, Wednesday, 12:00 M. to Monday, 8:00 A.M.	Thanksgiving Recess
December 17-January 3, 1949, Friday, 12:00 M. to Monday, 8:00 A.M.	Christmas Recess

1949

January 3, Monday, 8:00 A.M.	Classes Resume
January 26-29, Wednesday to Saturday	Final Examinations
January 29, Saturday, 12:00 M.	First Semester ends
February 3, Thursday, 8:00 A.M.	Second Semester begins
February 22, Tuesday	Holiday, Washington's Birthday
March 5, Saturday, 12:00 M.	Second Semester ends for Poultry Majors
March 7, Monday	Placement begins for Poultry Students
April 2, Saturday, 12:00 M.	Second Semester ends for all courses except Food Management and Forestry
April 4, Monday	Placement begins for all majors except Food Management and Forestry
April 14-20, Thursday, 12:00 M. to Wednesday, 12:00 M.	Spring Recess
April 20, Wednesday, 12:00 M.	Classes resume
May 23-26, Monday to Thursday	Final Examinations
May 27-29, Friday to Sunday	Commencement

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Organization of 1947

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Helen S. Mitchell, Ph.D. .... Home Economics Building
Professor of Home Economics; Dean of School of Home Economics

D. Horace Nelson, Ph.D. .... Flint Laboratory
Assistant Professor of Dairy Industry

John B. Newlon .... Stockbridge Hall
Assistant Professor of Engineering

Arthur E. Niedick, M.S. .... Chapel
Assistant Professor of Speech

William G. O'Donnell, Ph.D. .... Chapel
Instructor in English

Robert C. Perrielo, B.S. .... Marshall Hall
Assistant Professor of Bacteriology

Paul N. Procopio, B.S. .... Wilder Hall
Instructor in Horticulture

George F. Pushee .... Stockbridge Hall
Assistant Professor of Engineering

Ernest J. Radcliffe, M.D. .... Physical Education Building
Professor of Hygiene and Head of Department of Student Health

Arnold D. Rhodes, M.F. .... French Hall
Professor of Forestry

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*On leave of absence.

Victor A. Rice, M.Agr. .... Stockbridge Hall
Professor of Animal Husbandry; Head of Department; Dean of the University School of Agriculture

J. Harry Rich, M.S. .... French Hall
Assistant Professor of Forestry

Oliver C. Roberts, M.S. .... French Hall
Assistant Professor of Pomology

Joseph R. Rogers, Jr. .... Physical Education Building
Assistant Professor of Physical Education

Donald E. Ross, B.S. .... French Hall
Assistant Professor of Floriculture

Glenn C. Russell, B.S. .... Stockbridge Hall
Instructor in Agronomy

Sargent Russell, M.S. .... Stockbridge Hall
Instructor in Agricultural Economics

William C. Sanctuary, M.S. .... Stockbridge Hall
Professor of Poultry Husbandry

Frank R. Shaw, Ph.D. .... Fernald Hall
Assistant Professor of Entomology and Beekeeping

Grant B. Snyder, M.S. .... French Hall
Professor of Commercial Vegetable Growing and Head of Department

Paul W. Stickel, M.F. .... French Hall
Assistant Professor of Forestry

Harvey L. Sweetman, Ph.D. .... Fernald Hall
Assistant Professor of Entomology

William H. Tague, B.S. .... Stockbridge Hall
Assistant Professor of Engineering

Floriana Tarantino, A.M. .... Chapel
Instructor in English

Charles H. Thayer .... Stockbridge Hall
Assistant Professor of Agronomy

Clark L. Thayer, B.S. .... French Hall
Professor of Floriculture and Head of Department; Acting Head of the University School of Horticulture

Ruth J. Totman, M.Ed. .... Drill Hall
Assistant Professor of Physical Education

Alden P. Tuttle, M.S. .... French Hall
Assistant Professor of Commercial Vegetable Growing

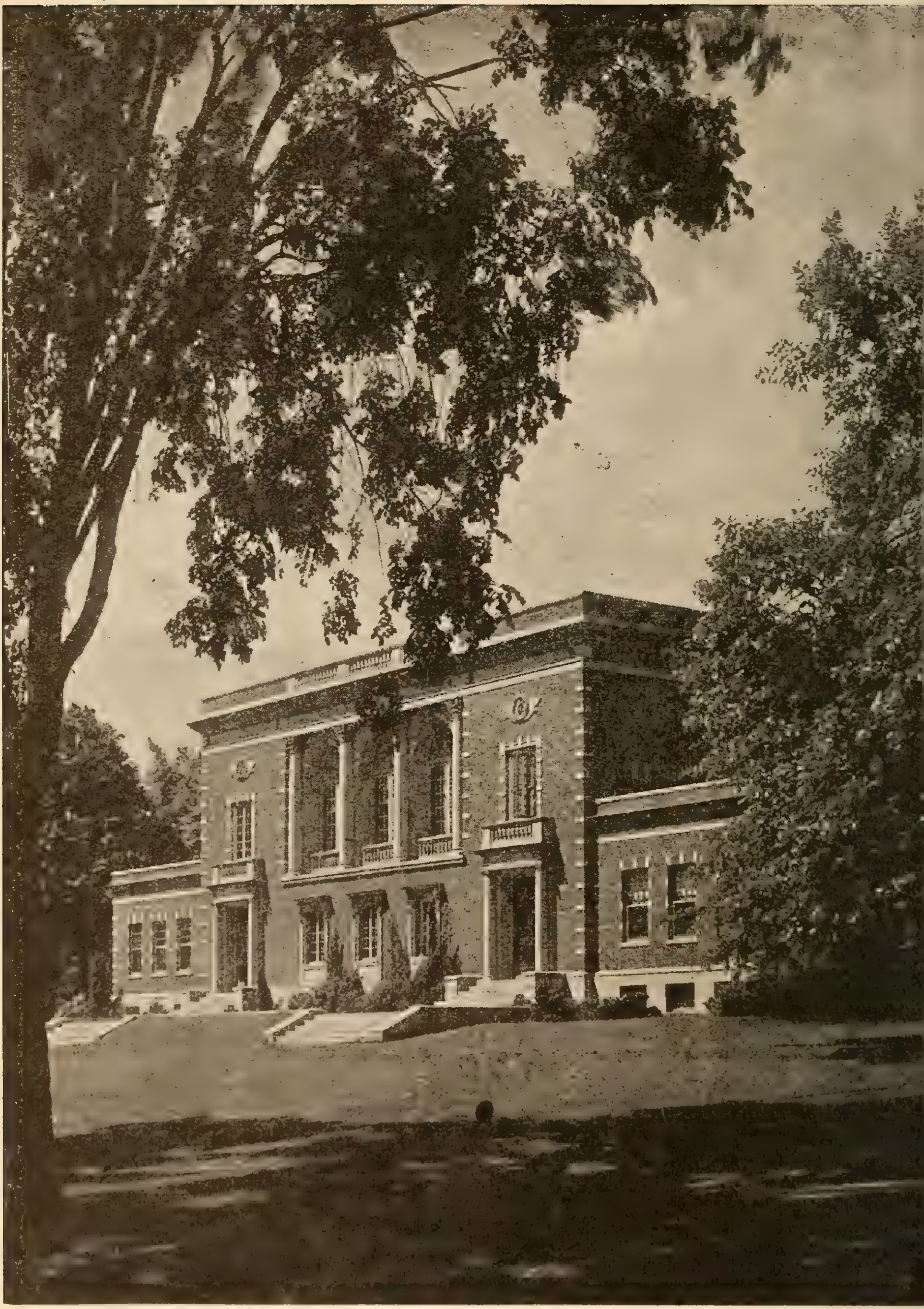
H. Leland Varley, M.A. .... Chapel
Instructor in English

John H. Vondel .... Stockbridge Hall
Assistant Professor of Poultry Husbandry

Martha R. Wright, B.S. .... Chapel
Instructor in English

Anthony W. Zaitz, B.S.D. .... Chapel
Instructor in English

John M. Zak, M.S. .... Stockbridge Hall
Instructor in Agronomy



Memorial Hall
Erected in memory of the "Loyal Sons of Old Massachusetts" who died in World War I.

"We Will Keep Faith With You Who Lie Asleep."

(inscription on east facade)

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

The Stockbridge School of Agriculture is the vocational non-degree department of the University providing training of post high school grade in agriculture, horticulture, and related business activities. In October 1946, two-year short courses were resumed after terminating in June 1943 when war conditions forced a change to a one year emergency program for 1944 and 1945.

Courses are planned to be of maximum use for the returning service man or woman who may be eligible for rehabilitation training under Public Law 16 because of war injuries. They will also be useful to the non-disabled veteran, eligible for further schooling under the G. I. Bill, Public Law 346, and who is interested in training himself for a successful agricultural business in the shortest possible time.

Eleven programs of study are offered, one of which must be selected by each student and completed as specified for the school diploma. The present list of offerings includes:

School of Agriculture

1.	Animal Husbandry	(see page 24)
2.	Dairy Manufactures	(" " 29)
3.	Poultry Husbandry	(" " 32)

School of Horticulture

1.	Arboriculture	(" " 36)
2.	Commercial Vegetable Growing	(" " 39)
3.	Fine Turf Maintenance	(" " 42)
4.	Floriculture	(" " 44)
5.	Food Management	(" " 47)
6.	Forestry	(" " 54)
7.	Fruit Growing	(" " 57)
8.	Ornamental Horticulture	(" " 61)

Since its organization in 1918 at the request of the Massachusetts Legislature the school has registered nearly 3,000 students and graduated twenty-seven classes. Graduates of the School are making important contributions to the food supply of this state, and will continue to do so in the years after the war.

The value of this kind of concentrated, technical schooling, aiming directly toward preparation for a definite field of work, is amply demonstrated by the successful careers of our graduates.

It is estimated about fifteen hundred farms change ownership each year in Massachusetts due to death, infirmity of age, disabling accident, or, in some few cases, just plain inefficient management. Farms will always need to have reliable sources of skilled workers and owner replacements, as war food shortages have so clearly proved, if New England crop production is to be successfully maintained on an adequate scale. This is both a challenge and an opportunity to young men and women.

In the armed forces of our country more than eight hundred Stockbridge men saw service, largely from the classes of 1939 to 1943.

General Information

Entrance Conditions:—The school program is open to any student who is seventeen years old or over and who has completed a secondary school course or its equivalent. There are no entrance examinations.

The Stockbridge School of Agriculture is not intended to divert students at present enrolled in high schools. Such students should complete the high school course if possible, since standard of class work required is practically equivalent to junior college grade.

A graduate of a Massachusetts county school of agriculture or of an agricultural department of a high school in this state, may complete certain major courses for a diploma in one year, if he is recommended by the director of the school or the agricultural instructor because of outstanding scholastic and experience record. Statement and record must be submitted from the school with application. This arrangement applies only to the Animal Husbandry, Poultry Husbandry, Commercial Vegetable Growing, Floriculture, and Fruit Growing courses.

How to Enrol.—Civilians: Fill out application blank, Form I, page 75, giving all information requested. Be sure to indicate course you wish to elect. Mail this form, with citizenship certificate, Form II, on same page, to Director of Short Courses. If application is accepted you will be notified, and certificate of citizenship will be kept on file until you register. Neither tuition nor fees are required until the week of registration.

Veterans:—Only citizens of Massachusetts are eligible under present limited enrolments due to crowded facilities in most courses. Because many class quotas are filled well in advance of registration, it is urged that veterans arrange for a personal interview at the Short Course Office before filing application for entrance. If and when accepted for entrance, veterans must be sure to comply with the following rules:

(1) Bring photostatic copy of discharge at time of registration if Army or Marine Corps personnel. If Navy, bring photostatic copy of your 553 form. If you have Certificate of Eligibility and Entitlement from the Veterans Administration, bring that. (2) If you have had previous schooling or on-the-job training under Veterans Administration (not here), a Supplemental Certificate of Eligibility and Entitlement must be secured from the Veterans Administration Office having your record after filing with them letter of acceptance from this office. (3) If married, you must present a marriage certificate from city or town clerk's office. If there are any dependents you must be sure to file Veterans Administration Form 509 at your nearest Veterans Administration contact office. (4) If a disabled veteran seeking training under Public Law 16, you must file Veterans Administration Form 1900 received at time of pension award at any Veterans Administration Office.

Registration.—Registration for freshmen will be held on Monday, October 4, and for seniors on Tuesday, October 5. All freshman students should be on campus from the day of registration until classes open on Wednesday, to meet required appointments for mental tests, physical examinations, and individual photographs for office records, and to have class schedules and individual programs explained.

Instruction.—Instruction is given by the University teaching staff through classroom teaching, laboratory exercises and practical work. The work of the classroom is supplemented by demonstration work in the barns, dairy plant, greenhouses, orchards, university gardens, engineering shops, quick freezing plant, canning plant, university forest, sawmill, and abattoir. The courses are planned to offer fundamental information, and to establish the underlying reasons as well as the special methods employed in the various operations. The combined advantages of university instruction and a university plant with all its varied resources are thus made available to young men and women training for successful business careers in agricultural vocations.

The usual University holidays are indicated on calendar, Page 6. First year Arboriculture students register two weeks prior to the starting of regular class work for preliminary training in the use of ropes and climbing. Freshman Poultry students complete only one month of the second semester because early placement is required by employers. Other freshman classes continue to April first, when most students are assigned to placement jobs, excepting Food Management and Forestry freshmen who complete two full semesters. Class work is required at the University in the months of October to March inclusive; placement training for practical experience on jobs away from the University, on a wage basis, is required of all first year students from April to September inclusive, with exceptions noted.

Diploma Requirements.—In order to obtain a diploma a student must complete satisfactorily the entire program of study in which he has registered. A student failing to pass the requirements of summer placement training, after a suitable job has been assigned him, is not eligible for graduation until this deficiency is made up, and may not be allowed to enrol for the second year, if the Director of Placement Service considers his record to be unsatisfactory.

Transfer Credits.—Graduation from the Stockbridge School of Agriculture does not fulfill the requirements for entrance in the University degree course, nor are credits earned during the course transferable regularly toward credit for a degree at this University.

Students who make outstanding scholastic and placement records in this two-year course, and whose high school preparation has been satisfactory, may transfer to the same major program in the University with credit allowances of one to two semesters, depending on the individual record. This arrangement is limited strictly to students who meet the stipulated requirements, and each case is considered individually by the Registrar.

Graduation Requirements.—No student will be graduated unless all bills due the University are paid on or before the Wednesday preceding graduation exercises.

Diplomas and letters of honorable dismissal will be withheld from all students who have not paid bills due the University, or legitimate bills due private individuals or business concerns.

A diploma will not be awarded to any senior, if arrears are reported by his fraternity. All bills for second semester, senior year, must be settled not later than the Wednesday before graduation.

Attendance at graduation exercises is required of all seniors before diploma will be awarded.

Seniors who have borrowed from the Goldthwait Loan Fund will have diplomas held as collateral by the University until they have paid up loans in full. This in no way interferes with the privileges of graduation.

Scholarship Regulations.—At the close of each semester students receive a formal report showing the standings given in the subjects pursued by them.

If a student's class average in any subject is below 50, he is failed (F) in the course without final examination privilege and must repeat course with the following class.

If the average of the class grade and the final examination is between 50 and 60, the student is thereby conditioned (#) and must repeat examination only for a pass grade.

Students will be graded by instructors at mid-semester to show general standing and at the end of semester for permanent record. The Faculty Committee will consider all questionable grades after each marking period, and instructors will note on grade reports the names of all students whose work is seriously deficient.

When a student's record indicates failures or uniformly poor work, the Faculty Committee may recommend a close supervision of his work by the faculty adviser in his major course, or, if his scholastic grades disqualify him from further work in the school, he may be asked to withdraw at any time.

A first year student who has deficient scholastic work at the end of the first semester in February in his major courses will not be eligible for placement training until his work meets the required standard.

At the end of any semester a student who is failed or conditioned in more than one course or has conditions in more than two courses may be dismissed.

RULES AND REGULATIONS

Absences from Class

(1) No unexcused absences will be allowed from classes. (2) All excuses for absence shall be presented by the student in writing, and, if approved by the Director, an excuse card will be granted to be signed by the instructor. Excuse cards must be returned promptly to the office when properly signed. (3) Students presenting excuse cards covering absences are expected to make up all work missed, to the satisfaction of the instructor. (4) Instructors are directed to reduce final grades five points for each unexcused absence occurring on a student's record at the end of any semester. (5) No excuses will be accepted at the Short Course Office unless presented within two days after the student returns to classes. (6) Two tardinesses unexcused shall count as one absence. (7) Absences from classes immediately before or after a holiday are not allowed except by special permission. (8) The Short Course Office requires all students to report at once any illness to the university physician, particularly if continued absence from class is likely to result from the illness. (9) Students failing to observe these rules are placed on probation, and may be asked to withdraw from the course if further violations occur.

Absences from Examinations or Tests

Any student who absents himself from an appointed examination without sufficient cause shall be given zero thereon. In such case he shall not be entitled to a make-up examination unless the Director so requests.

Student Expenses

Tuition.—A tuition fee of $50 per semester is charged students, residents of Massachusetts, enrolled in the Stockbridge School of Agriculture. Students who are not residents of Massachusetts are charged a tuition fee of $200 each semester. The tuition per semester, charged persons not citizens of the United States is $200. **Students entering from Massachusetts, unless of voting age themselves, are required to file a statement signed by either town or city clerk, stating that the applicant's parent is a legal resident of Massachusetts.** (See Form II in back of catalog.)

Variation in Charges for Three Major Courses

Food Management Course.—Placement jobs in the Food Management Course are not available until after June 1, and students have to complete two semesters of resident study each year.

Poultry Husbandry Course.—Because of earlier placement required on poultry farms, students complete only one and one-quarter semesters of class work here the first year.

Forestry Course.—Two full semesters work the first year followed by four months placement training.

Summary of Expenses Estimated:

	FIRST YEAR		FIRST YEAR (Hotel & Forestry Majors)	SECOND YEAR	FIRST AND SECOND YEARS
	First Semester	Second Semester	Second Semester		Field Trips
Tuition (Citizens of Mass.)..	$50.00	$25.00	$50.00	$100.00	$15.00-52.00
(Poultry Majors		12.50)			
Board (University Cafeteria)..	160.00	80.00	160.00	320.00	(Fees listed under Major Programs)
(Poultry Majors)		40.00)			
Room Rent (Private Homes)..	72.00	36.00	72.00	144.00	
(Poultry Majors		18.00)			
*Student Fees (Itemized below).	16.75	11.50	17.00	36.00	
Books, stationery, etc.	35.00	35.00	35.00	70.00	
	$333.75	$187.50	$334.00	$670.00	$15.00-52.00
Poultry Majors		117.00			

These figures for board and room are estimates based on prevailing prices and are subject to change when and if conditions change.

***Student Fees:**

	FIRST YEAR		FIRST YEAR (Hotel & Forestry Majors)		SECOND YEAR	
	First Semester	Second Semester	First Semester	Second Semester	First Semester	Second Semester
Athletics	$10.00	$ 5.00	$10.00	$10.00	$10.00	$10.00
Class Tax	1.00	1.00	1.00	1.00	1.00	1.00
Collegian	1.00	.50	1.00	1.00	1.00	1.00
Concert Fee	1.50	1.50	1.50	1.50	1.50	1.50
Shorthorn (School Yearbook)	2.00	3.00	2.00	3.00	3.00	5.00
Stockbridge School Activties	.50	.50	.50	.50	.50	.50
Student Handbook	.75	—	.75	—	—	—
	$16.75	$11.50	$16.75	$17.00	$17.00	$19.00

Tuition and fees of approximately $67.00, are payable in full at the Treasurer's Office not later than one week after classes begin for the semester. According to adminstration ruling, students not paying semester accounts when due are suspended from classes. All checks payable to the University should be made out to Treasurer, University of Massachusetts.

A student who withdraws from the University for any reason before a semester is half completed will have refunded to him one-half the fees paid for that semester, but one who leaves after completing more than the half semester will be allowed no rebate of fees.

The placement training period between the first and second year usually enables a student to earn from $500 to $1,000 depending upon his skill and general ability, and the type of work. This will pay a large part of the second year expenses.

Prospective students should understand that the above estimates cover expenses which may be called strictly University expenses, and that there are other financial obligations voluntarily assumed by students which they should expect to meet. Such expenses vary from $28 to $36 a year. Additional financial responsibility is also assumed by students joining fraternities or entering into other social activities of the University. Besides the amount necessary for clothes and traveling, the economical student will probably spend between $500 to $550 for the first year of one and one-half semesters in residence, and $650 to $700 for the second year of two semesters.

Rooms

Dormitory rooms are available only to students of the four year course. Private homes in the town furnish the chief source of rooms for Stockbridge students under assignment by the University Housing Office. Students are notified prior to registration of their location and should not make earlier inquiry.

Board

Stockbridge freshmen are not required to secure meals in the University cafeteria, but can do so if it is more convenient.

A number of public restaurants or dining rooms are located close to the University where most students arrange for meal service, usually approximating $2.00 a day, with allowances made if student goes home on week-ends, class schedule permitting.

A new student should sample the various places to find one suited to his needs, where he can meet with congenial members of his class group.

Books and Supplies

For the convenience of students the University maintains a store service in North College. Here all textbooks may be purchased at cost plus transportation charges. Students are informed at the first class session in each course what books are required and must secure individual copies according to order list sent in by instructor.

There is little opportunity to secure secondhand books because most students find the texts assigned of value to retain as reference sources after completing a course.

Student Aid

Students desiring any form of financial aid from the university including scholarship, employment, or loan, are required to file applications with the Student Aid Committee not later than June 10 of each year. Incoming freshmen are allowed an extension of time.

These application forms are used to determine the comparative need of the applicants and are passed on by the Student Aid Committee. No student is eligible for any kind of financial assistance from the University unless he or she has filed the required form and has been certified as deserving by the Student Aid Committee. Application forms may be secured at the Placement Service Office, South College.

Self Help.—The University does not encourage students to enter without money in the expectation of earning their way entirely. The student will find it better to work and accumulate sufficient funds before coming to the University, or else to take more than two years in completing his course.

No student should undertake work that interferes with his studies, and students should understand that no one may receive a large amount of work at the University.

First year students particularly should not risk failure in their beginning studies by taking on such extra work until they have, at least, tested themselves in the study program of the first semester. Certainly, it is advised to proceed cautiously in combining both extra work and athletics at the same time, if the student's scholastic record is at all questionable.

The Vincent Goldthwait Loan Fund.—This fund was established by Dr. Joel E. Goldthwait, U. of M. 1885, of Boston, as a memorial to his son who died in 1922 during his junior year at Harvard. Its purpose is to aid worthy senior students who find it difficult to secure adequate finances to complete their final year. Only seniors needing a supplement to funds already available will be considered. Amounts in excess of $200.00 are rarely granted and most loans range from $50 to $150.00.

A regular promissory note must be executed, endorsed by parent or guardian, and repayment may be made within any reasonable period after graduation up to one year. There is no interest charge.

Wilbur H. H. Ward Scholarships.—The Wilbur H. H. Ward Fund is administered by a Board of Trustees independent of the University. Applicants for these scholarships should write to Sumner R. Parker, who may be addressed at the University. They are available only to Hampshire County boys.

Student Employment Projects

Part-time work is available for a limited number of candidates. The type of work to which students are assigned consists of the following:

Clerical and office, building and grounds maintenance, farm, greenhouse and orchard duties, helpers in livestock and cattle barns, and other miscellaneous types.

General Exercises

Assembly exercises are held weekly on Wednesdays, 11:00-12:00 M., and serve to bring together all Stockbridge students for a general program dealing with matters of interest to the University and the School. Among speakers who appear from time to time are the President of the University, members of the University Staff and others who have interesting subject matter to present. This weekly assembly also enables announcements concerning students and student affairs to be presented, and permits class presidents to make advance reservations for business meetings when necessary. **No unexcused absences from this exercise are allowed.**

Two assemblies each month are used for special song practice to train all students in both school and popular songs.

STUDENT ACTIVITIES

A large number of student organizations furnish opportunity to students for work and leadership.

Memorial Hall is the center of student activities and contains offices for the various student organizations, including the Stockbridge School Student Council. On the first floor are located a lounging room, the Memorial Room, and the offices; in the basement, bowling alleys, pool and ping pong tables; and on the second floor an auditorium for meetings and dances. This building was erected by the alumni, students, faculty, and friends in honor of the fifty-one "Aggie" men who gave their lives in World War I.

For those students who play musical instruments there are opportunities with the University Orchestra and the University Band.

Student Council.—The Stockbridge School Council is composed of representatives of the first and second year classes. This body serves as a general committee on student government and helps to maintain the best traditions and customs of the School.

Shorthorn.—A student yearbook called "The Shorthorn" is published annually by the members of the graduating class, and is usually issued in June. All students subscribe to it.

Fraternities.—There are two Stockbridge fraternities for men in the student body, Alpha Tau Gamma and Kappa Kappa, both owning houses, serving as social and residential centers for their groups. For the small group of women students there is a Tri Sigma Club.

SCHOLASTIC SOCIETY

A Stockbridge Honorary Scholastic Society called "Stosag" was established in 1935 to encourage high scholarship. Students whose records show no grade below 70 in any subject and whose average for the first three semesters is 85 or better, are elected to membership in the society each June. Engraved certificates are awarded to members of the graduating class who have achieved this distinction.

Athletics and Physical Education.—The School has it own separate athletic program with regular schedules in football, basketball, ice hockey, cross-country and winter track. Sweaters and insignia are awarded to team members and managers in these sports. The official insignia is the letter S.

The football team plays a schedule of 6-7 games with preparatory school teams. The basketball team plays a 12 game schedule; the cross-country team usually runs 3 races, while 2 or 3 meets are scheduled for the winter track squad. Ice hockey affords 6 to 8 games depending on the weather.

Due to the fact that freshmen are on placement training during the spring term which leaves only seniors available, no regular team is maintained in baseball. Men desiring to play are organized into teams and an intramural league is arranged.

This athletic program is entirely under the supervision and direction of the Physical Education Department of the University and coaches are provided for all sports. Instructor Stephen R. Kosakowski, director of the Stockbridge physical education work, is coach of football, basketball, hockey, and has charge of the spring recreation program. Assistant Professor Llewellyn L. Derby, coach of the varsity track team, has charge of the cross-country and winter track squads.

All students are urged to participate in some sport each semester, but first year students should be sure all studies are well maintained. No squads are reduced by eliminating the inexperienced players, and everyone is given an opportunity to play in games. The football squads in the past have consisted of approximately 50 candidates. Games have been scheduled for both the second and third teams so that every man on the squad has participated in an outside scheduled game. Both the first and second teams in basketball have regularly scheduled games and an intramural league schedule is arranged for those not playing on the first squad.

Every care is exercised to guard against men overtaxing their strength in any sport or game to the detriment of their health. No man whose physical condition is at all questionable is allowed to play on the teams. A careful check is maintained by required physical examinations for all students given by the University physician at the opening of the school year. A second examination is made of each man before permission is granted to participate in any sport.

Students also subscribe to the university varsity games and have attendance privileges for varsity sports on the campus.

Class work in physical education for men not on athletic squads is required for both seniors and freshmen during the first semester. This consists of 2 class periods a week. The object of this course is to give the men some knowledge of games which may be of value to them in after school days, as well as to give every man an opportunity to develop sufficient control over his body to enable him to get pleasure from physical activities and to establish correct health habits.

The freshmen receive instruction in softball, touch football, golf, and swimming. Men may elect football or cross-country, instead of the regular class work. The seniors take up volleyball, badminton, archery, and swimming. They may also elect football or cross-country. The classes are organized into teams which compete against each other with much rivalry. Students are expected to wear old clothes during the play period, and shower baths are required at the close of each class period.

A physical education building containing a swimming pool, a great indoor cage 150 by 180 feet for all kinds of sports and games, and complete locker room and shower bath facilities provide ample equipment to carry out this program. Individual equipment is supplied to all members of the football, hockey, basketball, cross-country, and track squads.

STUDENT RELATIONS

The customary high standard of university men in honor, manliness, self-respect, and consideration for the rights of others constitutes the standards of student deportment.

Any student known to be guilty of dishonest conduct or persistent violation of rules must be reported by the instructor to the Director for discipline.

The privileges of the university may be withdrawn from any student at any time if such action is deemed advisable.

It should be understood that the university, acting through its President or any administrative officer designated by him, distinctly reserves the right not only to suspend or dismiss students, but also to name conditions under which students may remain in the institution. For example, if a student is not doing creditable work he may not only be disciplined, but he may be required to meet certain prescribed conditions in respect to his studies, even though under the foregoing rules his status as a student be not affected. The same provision applies equally to the matter of absences.

Similarly, also, it applies to participation in student activities. Though this will ordinarly be governed by the rules as already laid down, yet if in the judgment of the university authorities a student is neglecting his work on account of these activities, the privilege of participating in them may be withdrawn for such time as is considered necessary. Moreover, it may be withdrawn as a punishment for misconduct.

HEALTH SERVICE

The University endeavors to safeguard the health of all students while on the campus and for this purpose maintains a Department of Student Health, staffed by two physicians, four resident registered nurses, and operates a group of three Infirmary buildings.

(1) Physical examination by the Health Service is required of all undergraduate students annually, or more often if indicated. This examination is given to freshmen during matriculation week. *Evidence of a successful smallpox vaccination is required.*

(2) The Student Health physicians have offices in the Physical Education building and in the Out-Patient Building, where they may be consulted during university hours.

(3) The Infirmary consists of three buildings on East side of campus, near Marshall Hall, one for bed patients, one for contagious cases, and one for out-patient cases, where the out-patient clinic is conducted daily by one of the Student Health physicians.

Out-patient hours are: Week days 9:00-11:30 a.m., 3:00-5:00 p.m. Saturdays 9:00-11:30 a.m.

(4) Students are urged to consult the resident physicians at the first sign of physical disorder, or even for minor accidents. Many severe illnesses and much lost time can be avoided by early or preventive treatment.

(5) A Trustee ruling grants free time in the Infirmary — when necessary for treatment — up to seven days in the school year. This free time applies to regularly enrolled undergraduate students only. For time in excess of seven days or for other bed patients, a charge of $4.00 per day is made against the patient.

(6) In addition to the charges specified in paragraph 5, the following additional expenses will be charged to the patient.

(a) *Nurses.* — In case a special nurse is required for the proper care of an individual the services and board of this nurse will be paid by the patient. Such a nurse will be under the general supervision of the chief resident nurse.

(b) *Professional Service.* — If a student requires continuous medical attention by a physician, he may be required to select a town physician and becomes responsible for fees charged by that physician.

(c) *Supplies.* — Special medical supplies prescribed by a physician will be charged to the patient.

GOODELL LIBRARY

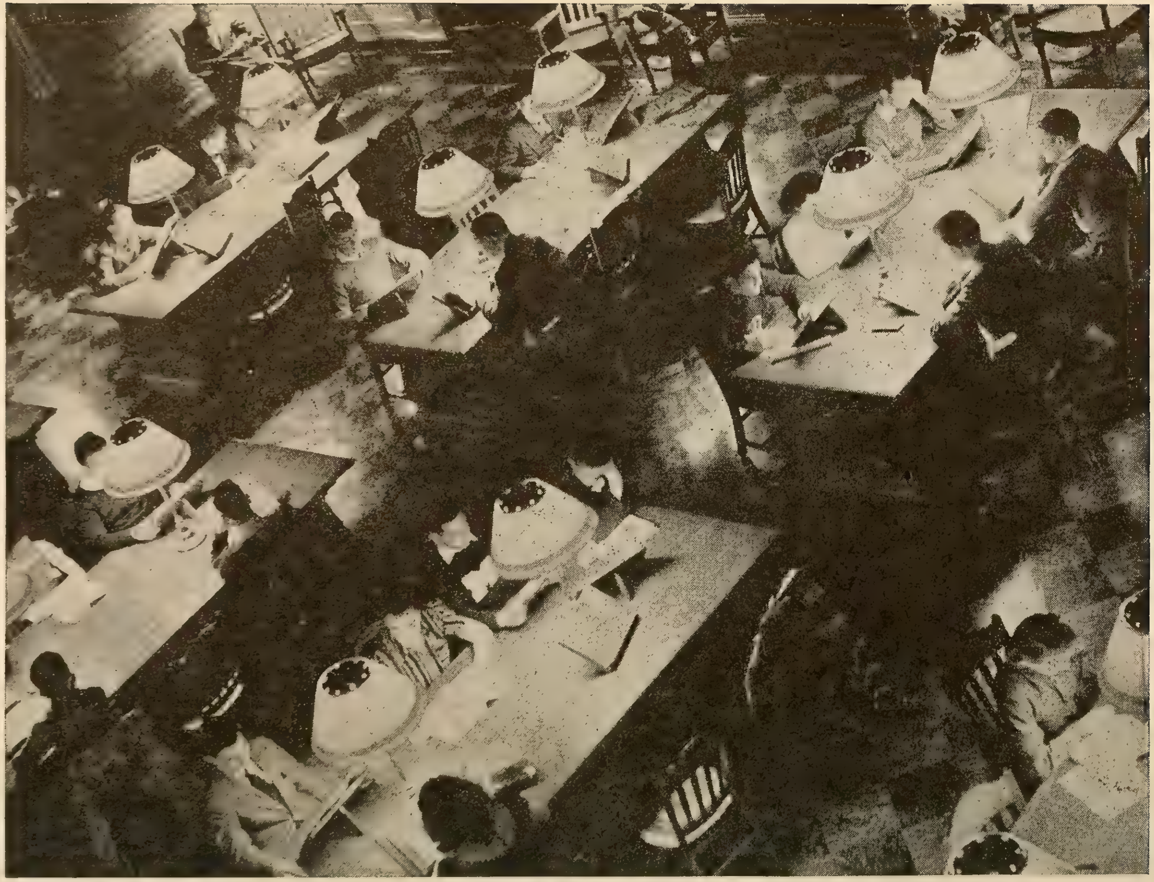
This fine building completed in 1935 houses the University Library. This library contains one of the best collections in agriculture and related sciences in the country, with special strength in entomology, botany, chemistry, horticulture, landscape architecture, soil science and animal husbandry, but with large collections, also in literature, history, economics and sociology. There are over 148,000 bound books, and over 50,000 classified pamphlets giving most recent information. The periodical file contains over 600 current magazines, both scientific and popular, and a careful selection of periodical publications of learned societies. The Library is unusually rich in files of journals and publications of Experiment Stations. The Library is open from 7:45 A.M. until 10:00 P.M., Monday through Friday, and from 7:45 A.M. until 5:00 P.M., Saturdays. Sundays the Library is open from 1:45 to 4:45 P.M. and 7:00 to 9:30 P. M.

The building is named in memory of Henry Hill Goodell, President of the University from 1886 to 1904 and Librarian from 1886 to 1898.

AGRICULTURAL OPPORTUNITIES FOR WOMEN

Agriculture is a field in which women have always found some opportunity. There are women farming independently in all branches of agriculture. As a rule poultry raising, small fruits and vegetable growing and floriculture, seem to offer women an easier opportunity than dairy, stock, and general farming. Women are also occasionally finding some paid positions which include farm and estate workers, and rarely managers. There are from time to time some positions available as garden service workers, and as agricultural officers in state correctional institutions.

For the woman or girl whose home is already upon the farm the opportunity is better. With the help of an agricultural education there are open to her many means of increasing her own or the farm income. With the knowledge of farm life which she already possesses, and with the possibility of securing occasional help from her family, she may be able to carry on and develop a profitable enterprise



Library Reading Room

of her own. The Stockbridge School of Agriculture offers to the women who wish to engage in farming the practical training which they will need to fit for such work.

Women who are interested in taking agricultural courses should correspond with Miss Carol Gawthrop, Placement Officer for Women.

POSITIONS

The University does not guarantee positions to students registered in any of its courses, but through the Placement Service it has an opportunity to recommend students for a large number of positions. A record is kept of each student's work and experience, and of his success in positions for which he has been recommended after he has finished his course. Opportunities for trained men and women, especially those who have had experience, are good.

A student desiring a recommendation from the university must meet the following conditions: —

(1) He must be of good character.
(2) His previous record must be good.
(3) His work in all courses must be satisfactory.

Students who have not previously had a considerable amount of practical experience cannot, as a rule, be recommended for positions of responsibility. This is especially true of the better positions for which managers or superintendents are wanted.

VOCATIONAL PLACEMENT

The work of locating first year students for apprentice training from April to October, after the resident term is completed, is in charge of the Director of Placement Service. Placement training for women students is in charge of Miss Carol Burr Gawthrop of the Placement Office. Every effort is made to secure satisfactory positions affording the kind of training desired by the student, but the Placement Office cannot guarantee to place every student for training, when positions are not available. In normal times placement positions are secured for all students who are eligible under these conditions.

1. Positions are secured that will enable a student to gain practical experience in his particular vocation.

2. A student desiring placement at home may arrange for such assignment if the Director of Placement approves. As a rule, it will be found more desirable for a student to spend this six months away from home even though he plans to be employed there after finishing the course. This statement is based on the experience of students who have already taken the course.

3. If credit is to be secured for the six months' placement training the following rules must be carefully observed.

Rules for Stockbridge Students on Placement

1. The student must interview the Director of Placement early in his first year in order that his qualifications, the type of work he wishes to pursue, and his general fitness may be determined.

2. No final arrangement for placement training may be made by the student himself until the Director of Placement has been consulted.

3. Students are required to complete their period of training without unnecessary absences.

4. No transfers are to be made by a student if he is to receive credit, until permission has been had from the Director of Placement.

5. A position may not be given up by the student until the Director of Placement has been notified.

6. A monthly report must be furnished on the form supplied, and submitted not later than the fifth of each month during his training period.

7. Students must satisfactorily complete all reports as required by the various departments.

8. When a student fails to complete the requirements of his placement training with a satisfactory grade, he is not allowed to take the work of the second year.

9. All students are given a thorough physical examination by the Department of Physical Education at the beginning of each university year. Any disabilities liable to affect the student's placement work are noted, and, if of a serious nature, recommendations for corrective measures are supplied. Parents should understand that most kinds of agricultural work require a well-balanced combination of brawn and brain. No student whose physical condition is questionable will be accepted for placement training without a physician's certificate, and parents' approval.

It should be clearly understood by both employer and employee that the same energy, regularity and general conduct will be expected of the student during his period of placement training as is expected in his work in classes and on the campus.

It should also be noted that this six months' experience is educational in its nature. Students are expected to earn and receive a reasonable wage, but the purpose of the training is the experience gained rather than the wage earned. The scale of wages may vary in different localities, but each man's ability is given very careful thought, that he may obtain a wage that is fair to him. In the event of any misunderstanding the supervisor should be immediately informed.

THE LOTTA AGRICULTURAL FUND FOR GRADUATES ENTERING AGRICULTURAL PURSUITS

(Prepared by the Lotta M. Crabtree University Committee with the approval of the Trustees of the Lotta M. Crabtree Estate.)

A 1940 decision of the Probate Court of Norfolk County made available the Lotta M. Crabtree Agricultural Funds to graduates of the Stockbridge School of Agriculture, as well as to graduates of the four-year course at the University of Massachusetts. This decision does not, however, lessen the restrictions or change the purposes for which these funds can be used for farm financing.

The purpose of loans from these funds is to assist meritorious graduates who are without means in establishing themselves in agricultural pursuits. These loans are made without interest or service charges other than the cost of title search and legal papers. They must, however, be paid back in full amount within a reasonable length of time and there are certain restrictions on their use.

To avoid disappointment on the part of applicants and save unnecessary work and expense in investigating applications for loans, there are certain questions that the prospective borrower should answer for himself before making application for a Crabtree loan.. The more important of these follow:

1. Am I thoroughly qualified, both in training and experience, to successfully manage the project that I am planning? Experience on a farm or in the agricultural enterprise contemplated, in addition to classroom training is one of the first essentials for success. If such experience is lacking, it is usually best to delay application for a loan until acquired.

2. Is the project that I seek assistance in financing really an "agricultural pursuit"?

3. Am I using these funds entirely to establish myself in business or are they being used in part to benefit some other person who is not a graduate of the University of Massachusetts or the Stockbridge School? This question sometimes arises in connection with "family" and "partnership" propositions. It has no reference to a wife or other dependent but no part of the loan can be used to finance a person who is not a University or Stockbridge graduate.

4. Am I using these funds for refinancing present debts? The purpose of these loans is to "establish" rather than "reestablish" persons in agricultural pursuits. They cannot be used for retiring present debts.

5. Will the amount that I can hope to borrow from these funds adequately finance the enterprise that I am planning to engage in? Lotta Agricultural loans are used mostly to supplement other forms of financing rather than for

complete financing of farming operations. Reasonably definite plans for the other financing, which the loan is intended to supplement, should be worked out before applying for a Crabtree loan.

6. What can I offer as security to adequately safeguard this loan? A Crabtree loan, like any other loan, should be safeguarded against possible death or financial failure of the recipient. While character and personal integrity of the applicant are large factors in decisions relative to granting of a loan, adequate security should be provided as far as possible.

7. Can I amortize my debt payments and other financial obligations so that I can repay this loan within a reasonable period of time? Most Crabtree loans are made under definite agreement to repay within a relatively short period of years. The Crabtree applicant should therefore make certain, barring calamity, that his income above necessary operating and living expenses will be great enough to allow annual, semi-annual or monthly payments on this loan as well as on other debt obligations that he may be carrying.

8. Will this loan actually help me to make more money or will it merely delay the time and increase the burden of final financial reckoning? The answer to this question and also to No. 7 involves careful budgeting and planning ahead. Unless an applicant can show on paper by carefully projected plans and budgets of expected receipts and expenses that he will benefit by a loan, he is likely to have difficulty in repaying it.

Applications for the "Lotta Agricultural Fund" should be addressed to the Trustees of the Lotta M. Crabtree Estate, 619 Washington Street, Boston, Massachusetts, or may be secured at the Short Course Office or the Placement Office at the University. The Director of Placement has been designated as the Stockbridge representative on the faculty committee which makes approval recommendations to the Crabtree trustees. Decisions regarding the granting of a loan rest entirely with the Trustees under the terms of Miss Crabtree's will.

ANIMAL HUSBANDRY

Professor Rice, Associate Professor Foley, Assistant Professor Blaisdell, Assistant Professor Cowan, Assistant Professor Hale

Animal Husbandry, in this School, refers to the breeding, feeding, and management of dairy cattle, beef cattle, horses, sheep and swine.

The purposes of the courses in Animal Husbandry are (1) to provide the student with a thorough understanding of the basic principles involved in the creation of more efficient and more beautiful animal types, said principles being those involved in the biology of animal reproduction, the chemistry of animal growth and feeding and the economics of livestock production; (2) to show the practical workings of these principles in the selection, feeding and management of the various classes of livestock and (3) to provide practice in judging, fitting, showing and general management of livestock as well as the production of milk and other products, and the slaughtering, curing and marketing of meat products.

The University dairy herd comprises about 150 animals in the Ayrshire, Guernsey, Holstein, Jersey and Milking Shorthorn breeds. In beef cattle, we maintain a herd of Aberdeen-Angus; in sheep, flocks of Southdowns and Shropshires; in swine, a herd of Chester Whites; and in horses, a band of Percheron mares and stallions as well as one or two stallions and several mares in the light horse breeds. Modern barns house the above animals and modern equipment is available for practice work with them.

The University Farm of about 400 acres is handled primarily as a live stock farm, producing, pasture, hays, silages and some grain crops for live stock feeding. The farm is equipped with the most up-to-date machinery for agricultural production. The farm and barns are our laboratories, the animals and accessories our equipment.

The Charles H. Hood Dairy Foundation Prize for Animal Husbandry Seniors

The Charles H. Hood Dairy Foundation Prize of $200 is awarded annually to three seniors who in the judgment of a special faculty committee has made an outstanding scholastic record in this major course and who because of their practical qualifications, personality, and character, seem best qualified for success in this field.

The first prize is $100, the second $60, and the third $40.

Trains for Jobs Like These:

Owners and operators of dairy farms; farm managers; superintendents or foremen; herdsmen in various kinds of livestock enterprises; dairy herd association testers; inseminators in artificial breeding units; businesses allied to agriculture such as farm cooperative fieldmen, sales and service men for feed, fertilizer and farm machinery companies.

Field trips will be required during the two years at an estimated cost of $40 per student.

Special equipment needed for students in Animal Husbandry are: knives, boots, and wash suits, at an estimated cost of $15.

Animal Husbandry

First Year

First Semester

(Sixteen Weeks Resident Instruction)
Agricultural Economics S3 (Marketing)
Agronomy S1 (Soil Management)
Animal Husbandry S1 (Types and Breeds)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Dairy S1 (General Dairying)
Farm Management S3 (Efficiency in Farming Operations)
Hygiene S1 (Required of women students)
Physical Education S1 (Required of men students not participating in football; also required of women students.)
Milking, Harnessing and Teaming
(Practice periods only, by arrangement)

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Agricultural Engineering S4 (Farm Shop)
Agronomy S2 (Fertilizers)
Animal Husbandry S2 (Principles of Feeding)
Fruit Growing S10 (General Course)
Poultry Husbandry S10 (General Course)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S1 (Farm Motors)
Animal Husbandry S3 (Animal Breeding)
Animal Husbandry S5 (Farm Meats)
Business English S1
Farm Management S1 (Farm Management and Accounts)
Public Speaking S1
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S10 (Farm Structures and Drainage)
Agronomy S4 (Field Crops)
Animal Husbandry S4 (Live Stock Production)
Animal Husbandry S6 (Dairy Cattle and Milk Production)
Public Speaking S2
Veterinary Science S2 (Applied Animal Sanitary Science)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

ANIMAL HUSBANDRY S-1. (Types and Breeds) I.

This course considers the origin, history, development, characteristics and distribution of the breeds of cattle, sheep, swine and horses commercially important in the United States. The conditions to which each class of live stock and each breed seem best adapted will be discussed. Laboratory work consists of judging and evaluating as many rings of dairy, dual-purpose, beef cattle, sheep, swine and draft horses as time permits.

3 class hours and 1 2-hour laboratory period a week. Credit. 4.

ASSOCIATE PROFESSOR FOLEY.

ANIMAL HUSBANDRY S-2. (Principles of Feeding) II.

This course includes a study of the organs of digestion, the digestion and absorption of feeds, the classification and characteristics of the common feedstuffs, the utilization of feeds in maintenance, growth, fattening; meat, work and milk production. Some time will be spent on the importance of minerals and vitamins. Methods of calculating balanced rations; feeding standards, and feeding practices will be studied.

4 class hours and 1 2-hour laboratory period a week. Credit, 5.

ASSISTANT PROFESSOR COWAN.

ANIMAL HUSBANDRY S-3. (Animal Breeding) I.

This course is planned to acquaint the student with the facts of reproductive physiology, with the facts and theories of modern genetics, and to show how such knowledge may be utilized through genetic analyses, selection, and systems of breeding for the creation of more beautiful and more efficient animal types.

3 class hours and 1 2-hour laboratory period a week. Credit, 4.

ASSOCIATE PROFESSOR FOLEY AND ASSISTANT PROFESSOR COWAN.

ANIMAL HUSBANDRY S-4. (Live Stock Production) II.

This course deals briefly with the problems of selection, breeding and care of horses, beef cattle, sheep, and swine, with emphasis on their place in New England agriculture. Attention is given to the general situation, equipment, feeding, management problems and disease control. The laboratory periods consist of practice in fitting and showing, shearing, docking and castrating. As a part of the laboratory work, each student will be assigned an animal for fitting and showing in the "Little International" which will be held on a Saturday in March. Trips to other purebred live stock establishments in New England will be required during the semester. The cost of transportation will not exceed $5.00.

Prerequisites: Animal Husbandry S-1 and Animal Husbandry S-2.

2 class hours, 1 2-hour laboratory period and 1 4-hour laboratory period a week. Credit, 5.

ASSISTANT PROFESSOR HALE.

ANIMAL HUSBANDRY S-5. (Farm Meats) I.

This course includes a survey of the packing industry and follows the product (i. e. beef, pork, lamb and veal) from the feed-lot to the consumer's table. Practice is afforded in classifying animals as to market class and grade and in slaughtering, dressing, and cutting beef, pork, lamb and veal. At the end of the course a trip will be taken to several large packing houses in Boston consuming one day and costing about $10.00. Textbook: Ziegler, "The Meat We Eat."

Special equipment needed for this course includes knives, boots and wash suits, estimated cost $15.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR HALE.

ANIMAL HUSBANDRY S-6. (Dairy Cattle and Milk Production) II.

For Seniors.—This course treats all phases of dairy cattle production and management. The student is provided with an opportunity to study and seek the solution to the various economic, nutritional, genetic and managerial problems concerned in successful dairying. Lectures will be supplemented with talks by specialists in the various fields. Laboratory will consist of a detailed study of methods used on the university farm, with practice in the various skills necessary for the herdsman or showman.

Trips to purebred live stock farms in the state for the purpose of inspection and advanced dairy cattle judging will be required on five Saturdays during the spring semester. The cost for transportation will not exceed $15.00.

3 class hours and 2 2-hour laboratory periods a week. Credit, 5.

ASSOCIATE PROFESSOR FOLEY.

ANIMAL HUSBANDRY S-8. (Food Management Meats) II.

For Seniors in the Food Management Course. This course is designed to impart a knowledge of the fundamental principles involved in judging, purchasing, and efficiently utilizing meat and meat products. Laboratories will involve actual slaughtering, dressing, wholesale and retail cutting and preparation of by-products. Judging practice will be secured in a near by packer cooler and at the end of the course a one day trip costing $10.00 will be scheduled to several large packing houses in Boston. Textbook: Ziegler, "The Meat We Eat." Special equipment needed for this course includes knives, boots, and wash suits—estimated cost $15.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR HALE.

ANIMAL HUSBANDRY S-9. (Special Dairy Cattle Course) I.

For Dairy Manufactures, Poultry Husbandry and Fruit Growing Majors. This course considers briefly the origin, history, development, characteristics and distribution of the six major dairy and dual purpose breeds of cattle. The course will cover the basic principles of dairy cattle feeding, including feeding standards and the calculation of balanced rations. The principles of genetics and the art of breeding better dairy cattle will be emphasized. Management of the dairy herd for the health standpoint and for profitable returns will complete the lecture portion of the course. Laboratories will be devoted to judging, identification of feeds, and various managerial problems. Textbook: Peterson, "Dairy Science."

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

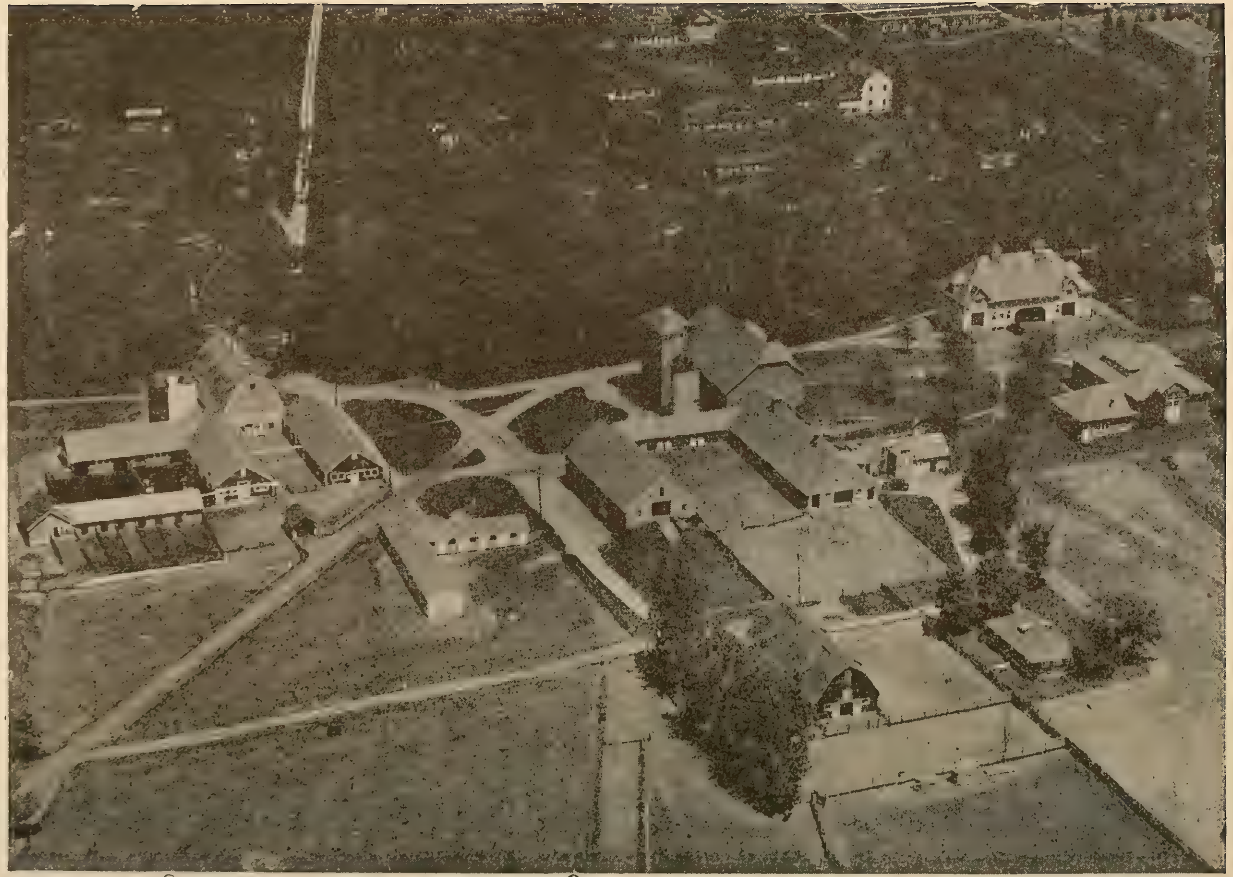
ASSOCIATE PROFESSOR FOLEY.

Note—Every student in this course must qualify in milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

The past 30 years have brought social and technological changes so extensive that they are revolutionizing agricultural production and rural living. The output per person in agriculture in Massachusetts has increased over 50 per cent. In fact, innovations during these years are doing more to increase the efficiency and reduce the cost of farm products, than all the improvements of the previous 300 years put together.

The application of mechanical power to operations relating to land improvement and crop production has increased the output of man's effort tenfold.

These changes have resulted, in large part, from greater emphasis on education and research in agriculture. The net effect of these changes has been to extend the farmers' contacts into new and more complex relationships, and to require progressively higher levels of scientific knowledge and technical ability for successful farm operation. Continued progress must come through even more intensive and widespread education and research in the future. This means opportunity for future generations, properly trained in the sciences relating to agriculture.



DAIRY MANUFACTURES

Professor Hankinson, Assistant Professor Lindquist,
Assistant Professor Nelson, Instructor Finnegan

The Dairy Manufactures course is designed to fit men for positions with market milk concerns, creameries, ice cream plants, and specialized dairy farms.

All dairy manufacturing courses are given in the dairy building (Flint Laboratory), a building devoted especially to dairy work. The building is well equipped with dairy and creamery machinery.

The market milk room contains two complete pasteurizing units, a clarifier, separator, automatic bottle filler and capper, and other necessary equipment for the proper handling of market milk.

The ice cream making room contains a pasteurizing vat, homogenizer, cooler, brine and direct expansion freezers, continuous freezer, filling machines, and additional equipment such as is found in a modern ice cream plant.

The room designed for cheese making is equipped with cheese vats, draining racks, presses, etc. The butter making room has various types of hand and power churns, workers, scales and other accessories.

The separator room contains a collection of separators and other modern equipment and supplies for the dairyman.

The testing laboratories are well equipped with apparatus for the Babcock, Mojonnier, and other tests used for the determination of fat, acidity, and general cleanliness of milk and milk products.

Trains For Jobs Like These:

Skilled workers in wholesale and retail dairy plants including laboratory technicians, milk plant operators (such as pasteurizer operators, etc.), ice cream plant operators (such as mix makers, freezer operators, fancy form decorators), cheesemakers and salesworkers; also dairy equipment and supply salesmen, fieldmen and Dairy Herd Improvement Association testers. Such training supplemented with sufficient practical experience may lead to positions such as assistant plant superintendents and plant managers.

Field trips will be required during the two years at an estimated cost of $20 per student.

While working in the dairy laboratories, white suits and rubber footwear are required, at an estimated cost of $10.00.

Dairy Manufactures

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Economics S5 (Dairy Business Accounting)
Agricultural Engineering S1 (Farm Motors)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Dairy S1 (General Dairying)
Practical Science S7
Public Speaking S1
Hygiene S1 (Required of women students)
Physical Education S1 (Required of men students not participating in football; also required of women students).

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Dairy S2 (Testing Milk Products)
Food Technology S2 (Basic Principles and Freezing)
Food Technology S4 (Special Products)
Practical Science S8
Public Speaking S2
Physical Education S2 (Required of Women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Animal Husbandry S9 (Special Dairy Cattle Course)
Business English S1
Business Management S3
Dairy S3 (Ice Cream Making, Cheese, and other Milk Products)
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For Women)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S2 (Marketing)
Agricultural Engineering S6 (Dairy Mechanics)
Bacteriology S4 (Dairy Bacteriology)
Dairy S4 (Market Milk and Butter Making)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Dairy S-1. (General Dairying) I.

This course takes up the question of the importance of dairying in the United States, and especially in the New England States, giving the development of dairying from the earliest to the present time. It covers the secretion, composition, and properties of milk; reasons for variation in the per cent in fat in different samples of milk; the Babcock test for fat in milk and other dairy products; other common milk tests; the advantage of testing herds, Herd Improvement Associations, advanced registry work; the handling of market milk; soft cheese making, ice cream making, and butter making as applied to general farm conditions. The laboratory work consists in testing milk and dairy products for butter fat, solids, and acidity, together with some dairy plant experience in milk handling, butter making, cheese making, and ice cream making.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Assistant Professor Lindquist.

Dairy S-2. (Testing Milk Products) II.

In this course a study is made of the common tests used in dairy manufacturing processes.

The lectures in this course include a discussion of the application of tests, what they indicate and their importance in the dairy plant.

The laboratory work consists of a study of the various dairy laboratory tests such as sediment, flavor, and total solids of milk; moisture fat and salt determination in butter; moisture test of cheese; the operation of the Mojonnier tester and the modified Babcock tests for fat in dairy products.

In addition to the testing work students will be required to arrange for work about the plant in order to become familiar with dairy plant practices and the operation of dairy machinery.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Nelson.

Dairy S-3. (Ice Cream Making, Cheese, and Other Milk Products) I.

This course deals with the making of ice cream, cheese, condensed, evaporated and powdered milk.

In that part of the course on ice cream making, a careful study is made of modern methods of manufacturing the common frozen dairy products (ice cream, sherbets, ices, frozen puddings, punches, mousses, etc.).

The lecture work includes a discussion of the history of ice cream making, the ingredients found in ice cream, methods of preparing and standardizing mixes, the freezing process, methods of hardening, marketing, and distribution of the finished product.

The laboratory work involves the preparation and standardization of ice cream mixes, the freezing of ice cream and other frozen dairy products, and laboratory tests for butterfat and total solids in ice cream.

In that part of the course dealing with cheese making, a study is made of the different methods of manufacturing hard and soft cheese (cheddar, brick, cream, neufchatel, olive, nut, cottage, cheese spreads, etc.).

In the lectures the manufacture of the different cheeses is considered, either from the standpoint of marketing the entire milk supply of the dairy or as an economical means of disposing of surplus milk. In the laboratory work the different kinds of cheese are made.

Lectures are also given on the manufacture of the various concentrated products as sweetened condensed, evaporated, and powdered milk; casein, semi-solid buttermilk, dried whey, malted milk, etc.

3 class hours and 3 3-hour laboratory periods a week. Credit, 8.

ASSISTANT PROFESSOR LINDQUIST, ASSISTANT PROFESSOR NELSON,
AND INSTRUCTOR FINNEGAN.

DAIRY S-4. (Market Milk and Butter Making) II.

In that part of the course on market milk, a study of the development of the market milk industry is made. Attention is given to the necessary essentials in producing a high grade milk; the economics of milk production and distribution; food value and uses; the advantages and disadvantages of cooperative milk producers' organizations; the various methods of marketing milk; the transportation, processing and delivery of milk; manufacture and marketing of surplus milk in the form of by-products as cream, cultured buttermilk, chocolate milk, etc.

The laboratory work consists of receiving and making quality tests on milk and the operation of the machinery used in processing market milk.

In that part of the course on butter making, the principal factors studied are: methods of separating milk, the history, selection, care and use of separators; the pasteurization and ripening of cream; testing cream for acidity; the making and use of starters; a study of churns and churning; modern methods of making butter; marketing butter; tests for moisture, salt, fat, and curd content of butter.

3 class hours and 3 3-hour laboratory periods a week. Credit, 8.

ASSISTANT PROFESSOR LINDQUIST, ASSISTANT PROFESSOR NELSON,
AND INSTRUCTOR FINNEGAN.

DAIRY S-6. (General Course for Poultry Majors) II.

This course takes up the importance of dairying in the United States, and especially in the New England States.

Lectures will be given on secretion, composition, and properties of milk, reasons for variation in per cent of butter fat in different samples of milk. The Babcock test for fat in milk, cream, skim milk and buttermilk, the advantages of testing herds, herd improvement associations, advanced registry work; the handling of market milk, soft cheese making, ice cream making, and butter making, as applied to general farm conditions.

The laboratory work consists mainly in testing milk and dairy products for butter fat, solids, and acidity, together with some laboratory work in milk handling, butter making, cheese making, and ice cream making.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

ASSISTANT PROFESSOR LINDQUIST AND INSTRUCTOR FINNEGAN

POULTRY HUSBANDRY

Professor Jeffrey, Professor Sanctuary, Assistant Professor Banta, Assistant Professor Vondell

There are excellent opportunities in poultry work for men and women who have had the proper training. Graduates from this department have taken their places as leaders in the industry and have filled them capably. Some of them own their own breeding farms, manage or assist in the management of commercial egg farms, while others are in those industries which are closely allied with the production and marketing of poultry products.

Eight specialized courses and one general course are offered by this department. Those students who specialize in poultry culture take all eight courses. The general course is designed to give the students specializing in other branches of agriculture and horticulture the fundamental principles underlying successful poultry raising when a sideline on the farm.

The facilities for practical instruction in poultry husbandry include quarters and equipment in Stockbridge Hall for efficient classroom teaching and demonstrations.

The University Poultry Farm, our practical laboratory, comprises classrooms and laboratories which provide facilities for practice in incubation, breeding, feeding, fattening, killing, picking, candling and grading eggs, caponizing, judging, sexing, construction of poultry houses and appliances, and other phases of poultry work.

The well-bred flock of about 2,000 adult birds consists principally of White Plymouth Rocks, Single Comb Rhode Island Reds, Barred Plymouth Rocks, Single Comb White Leghorns and New Hampshires. The largest flocks of approximately 150 birds are used primarily for practical experiments and demonstrations in housing, feeding, breeding and management. Equipment includes several types of lamp and mammoth type incubators; many styles of coal and electric brooders and chick batteries for brooding and rearing approximately 5,000 chicks. A flock of several hundred Jersey Buff Turkeys is maintained.

The practical phases of commercial poultry production are stressed in the courses offered.

Trains For Jobs Like These:

Skilled workers on poultry farms, owner operators and managers; poultry breeding farms; operation of incubators and brooders; wholesale and retail poultry meats; testing, grading and packing eggs; poultry cooperative sales work with eggs, dressed and live fowl; salesmen for poultry feeds and equipment; broiler production and day-old chicks; turkey and duck farms, breeding (record of performance) and disease control (Pullorum) field men.

Field trips will be required during the two years at an estimated cost of $37 per student. All poultry Stockbridge students will be required to make a trip to the Boston Poultry Show which is held sometime during the month of January. Estimated cost $6.00.

Poultry Husbandry
First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Animal Husbandry S9 (Special Dairy Cattle Course)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Farm Management S3
Poultry Husbandry S1 (Judging and Housing)
Public Speaking S1
Vegetable Growing S9 (General Course)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Four Weeks Resident Instruction Followed by Seven Months Placement Training)

Dairy S6 (General Course)
Poultry Husbandry S2 (Incubation and Brooding)
Poultry Husbandry S4 (Feeding)
Public Speaking S2
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Engineering S3 (Farm Shop)
Fruit Growing S9 (General Course)
Poultry Husbandry S5 (Marketing)
Poultry Husbandry S7 (Breeding)
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For Women)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S2 (Farm Motors)
Agricultural Engineering S8 (Farm Structures)
Business English S2
Farm Management S2 (Farm Management and Accounts)
Poultry Husbandry S8 (Supervised Reading and Management)
Poultry Husbandry S12 (Specialties)
Veterinary Science S2 (Applied Animal Sanitary Science)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Poultry Husbandry S-1. (Judging and Housing) I.

This course embraces a study of the various economically important types of breeds of domestic fowl, judging for egg production capacity, and for exhibition quality. A visit to Storrs egg laying contest is required. Estimated cost is $2.00. This course also covers the principles and practices of constructing and equipping houses on a commercial poultry farm. A few trips to nearby poultry plants may be taken to study poultry house ventilation. Two credits for judging; two credits for housing.

3 class hours and 2 2-hour laboratory periods a week. Credit, 5.

Professor Sanctuary and Assistant Professor Banta.

Poultry Husbandry S-2. (Incubating and Brooding) II.

A study of incubation and brooding is made by means of the operation of standard incubators and brooders and through a consideration of basic principles. Students select and grade hatching eggs, operate small incubators and observe mammoth incubators for a period of time. Under supervision each student has charge of a brood of chicks. Each student will be expected to purchase a one-minute clinical thermometer.

The incubation part of the course will consist of three class hours, one laboratory period and one practice period, and will run parallel to the brooding part which will consist of two class hours, one laboratory period and one practice hour.

5 class hours; 2 2-hour laboratory periods and the equivalent of 2 2-hour laboratory periods in incubation and brooding practice. (7 days a week.) Credit, 9

Professor Sanctuary.

Poultry Husbandry S-4. (Feeding) II.

A study of the scientific principles of nutrition essential to commercial success, with particular emphasis on vitamins. Rations properly balanced for various purposes will be calculated. A comparative analysis of the different methods of feeding is included. Textbook: "Feeding Poultry" by Heuser—Published by John Wiley & Sons.

5 class hours and 1 2-hour laboratory period a week. Credit, 6.

Assistant Professor Banta.

Poultry Husbandry S-5. (Marketing) I.

A study of preparing eggs and poultry products to meet the requirements of the northeastern markets. Grades, prices and reports are studied in conjunction with different marketing methods. The laboratories are designed to cover the field of practical grading, internal study, candling and packing of eggs as well as selection, fattening and killing and dressing poultry by the latest approved methods.

A one-half day class trip to Springfield markets in December is required. Estimated cost, $2.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Assistant Professor Vondell.

Poultry Husbandry S-7. (Breeding) I.

This course includes the study of the improvement of poultry by means of mass selection, cockerel progeny, flock improvement, and pedigree methods of breeding. Students follow through each step of a pedigree hatch and assist in the selection of the breeders used at the university plant. Basic principles of heredity necessary for an understanding of good breeding practices are studied. A textbook costing $3.00 to $4.00 will be required.

4 class hours and 1 2-hour laboratory period a week. Credit, 5.

Professor Sanctuary.

Poultry Husbandry S-8. (Supervised Reading and Management) II.

Each student will be assigned references in the field in which he is most interested. Oral reports will be required. A major part of the work will be the writing of a term paper and students will be graded on their ability to summarize reference reading and on the neatness of their work. Required day trips totalling three or four days to representative commercial poultry areas are made at an approximate cost of $20.00 per student. The basic factors essential to a financially successful poultry enterprise are analyzed.

3 class hours a week. Credit, 3.

Professor Jeffrey.

Poultry Husbandry S-10. (General Poultry Husbandry) II.

Poultry keeping as a national industry; its importance and geographical distribution; opportunities and possibilities in poultry culture in Massachusetts; principles of feeding; utility classification of fowl; incubation; the production of hatching eggs; the baby chick industry; and brooding and rearing. Practical exercises will be closely correlated with the study of breeds and varieties, various types of incubators, brooders, brooder-houses, etc. Textbook: Jull, "Successful Poultry Management." Note: Students who take course S-10 must get permission from the Poultry Department to take advanced poultry courses.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Assistant Professor Vondell.

Poultry Husbandry S-12. (Specialties) II.

Turkeys, ducks, geese, and pigeons are considered. Breeding, incubation, feeding, rearing, management, marketing, housing, and disease control methods and practices are studied. Most of the course is devoted to the study of turkeys. Textbook: Marsden and Martin, "Turkey Management."

2 class hours a week. Credit, 2.

Assistant Professor Vondell.

Massachusetts Poultry Farmers in the Making

ARBORICULTURE

Assistant Professor Mathieu

Arboriculture is the care of trees. It includes tree planting; large tree moving; diagnosis and treatment of tree diseases, defects, and mechanical injuries; identification and control of tree insect pests; fertilizing; pruning and repair of storm or otherwise damaged trees; and removal of dead or undesirable trees. A growing appreciation of the value of trees and a demand for a tree maintenance service has led to the development of organizations to supply it. These firms desire trained men. All Massachusetts towns are required to elect tree wardens. The men who accept this responsibility should be trained in the requirements of trees and their care. This course is designed to give this basic training in the care of shade and ornamental trees to supply these needs.

This University offered the first course in the country on shade tree care in 1895, and since then a very high degree of interest in shade trees has been maintained here. Annually in March a school of one week's duration for tree wardens is held on the campus. This school brings together tree wardens and men interested in tree care to discuss their problems. Parts of the program of the school will be of interest to students in this course.

Our large campus has a wide variety of trees of all ages with which the student becomes acquainted, and which also serves as a laboratory for problems similar to those one will have to meet in practice. The research laboratory in shade tree diseases for the state is also located on the campus.

The Massachusetts Arborists' Association has approved this course as a basic training program.

Those electing Arboriculture must register two weeks prior to the opening of the fall semester for the preliminary training period. Applicants will be notified of the date of registration. This two-week period before the start of regular class work will be used for intensive training in the use of ropes and climbing. Eight hours a day will be given over completely to this purpose. Only those who qualify in this preliminary program will be permitted to take the course in Arboriculture. Those who do not qualify may take the Ornamental Horticulture course.

Trains for Jobs Like These:

Operators, foremen and salesmen for arboriculture firms, utility line clearance foremen, deputy tree wardens and eventually tree wardens in towns and cities, tree care in estates, parks, state highways, college campuses or grounds of other public institutions, developing one's own service organization for the practice of arboriculture.

Recommended clothes for tree climbing: breeches, good heavy workshirts.

All students qualifying will be required to obtain personal tools for cavity work, a hand saw, and a pair of 14" or 16" high top shoes with rubber or composition soles and heels at an approximate cost of $50.00. These can be obtained through the University Bookstore.

In each of the Arboriculture courses S1, S2, S3, S4, S5, and S6, required trips will be made to commercial operations in various parts of the state, the travel cost to be borne by the student, not to exceed $10 per semester, or a total of $40.

Arboriculture

First Year

First Semester

(Eighteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Agronomy S5 (Construction and Maintenance of Fine Turf Areas)
Arboriculture S0 (Tree Climbing. Special Qualifying Course)
Arboriculture S1 (Practices and Policies)
Botany S1 (Tree Physiology)
Horticulture S1 (Plant Materials, Trees)
Public Speaking S1
Physical Education S1 (Required of men students not participating in football)

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)
Arboriculture S2 (Continuation of S1)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S2 (Insects of Ornamental Trees and Shrubs)
Horticulture S2 (Plant Propagation)
Public Speaking S2

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Arboriculture S3 (Diagnosis and Control)
Arboriculture S5 (Shade Tree and Shrub Pests)
Business English S1
Forestry S3 (Woodland Management)
Fruit Growing S9 (General Course)
Horticulture S8 (Surveying and Mapping)
Physical Education S5 (Required of men students not participating in football)

Second Semester

(Sixteen Weeks Resident Instruction)

Arboriculture S4 (Diagnosis and Control)
Aboriculture S6 (Shade Tree and Shrub Pests)
Fruit Growing S4 (Fruit Pests and Spraying)
Horticulture S6 (Plant Materials, Shrubs)
Seeding and Planting S4

Electives

Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

ABORICULTURE S-0. (Tree Climbing) I.

For two weeks previous to the regular opening of school, all students electing this major will attend a special qualifying course in tree climbing. This course will be conducted on the campus for eight hours each day for two weeks to acquaint the student with ropes, tools, and climbing technique. To be enrolled in the arboriculture major all students must pass this qualifying tree climbing practice.

8 hours a day for two weeks. ASSISTANT PROFESSOR MATHIEU.

ARBORICULTURE S-1. (Practices and Policies) I.

Factual material covering the phases or types of work; pruning, cabling, bracing, fertilization and line clearance. Laboratory work in the application of class discussion.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.
ASSISTANT PROFESSOR MATHIEU.

ARBORICULTURE S-2. (Continuation of S-1) II.

Soils, their origin, structure and function as pertaining to tree growth and development. Fertilizers, their use, sources, application and functions of their elements in the growth and development of a tree. Cuts and fills and their treatment; cavity treatment and practice tree moving.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.
ASSISTANT PROFESSOR MATHIEU.

ARBORICULTURE S-3 and S-4. (Diagnosis and Control) I. II.

Individual and class assignments of tree problems and practice in applying remedial measures and controls. Reports of assignments and recommendations as to cost and time involved in actual field work.

1 class hour and 8 hours per week in conference and laboratory periods. Credit, 4.
ASSISTANT PROFESSOR MATHIEU.

Arboriculture S-5 and S-6. (Shade Tree and Shrub Pests) I. II.

Recognition of the prevalent shade tree and shrub insects and diseases, their life cycles, control measures, equipment and materials used in control. The lectures and laboratory work in diseases and insects will run concurrently throughout the two semesters of the senior year. Insect and fungus collection of specimens required.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Mathieu.

ONE YEAR COURSE IN ARBORICULTURE

Assistant Professor Mathieu

A one year course for students who have completed the two-year course in Ornamental Horticulture in the Stockbridge School of Agriculture. For the present, no more than five students will be accepted.

Qualifications: Applicants for this course must have fulfilled the following qualifications: 1. An average of 80 percent or better in their course work. 2. Recommended by conference of Department of Ornamental Horticulture, Arboriculture, and the Director of Short Courses. 3. Arboriculture S-0 (preliminary climbing training) must be taken by arrangement during the second semester of the Ornamental Horticulture senior year.

Certificate: A one-year certificate is granted upon satisfactory completion of the year's work, subject to the scholastic requirement of the School.

Arboriculture

First Semester (Sixteen Weeks Resident Instruction)	Second Semester (Sixteen Weeks Resident Instruction)
Arboriculture S1 (Practices and Policies)	Arboriculture S2 (Practices and Policies)
Botany S1 (Tree Physiology)	Arboriculture S4 (Diagnosis and Control)
Arboriculture S3 (Diagnosis and Control)	Forestry S4 (Forest Production)
Electives	Fruit S4 (Fruit Pests and Spraying)

The elective courses may be taken wherever the department concerned is involved. For veterans the Veterans Administration requirements are 23 class hours per week. Electives chosen must add up to this requirement. Should other courses be added to the Arboriculture Major that are not taken by students in the Ornamental Horticulture major, those courses will also be required for completion of the course.

COMMERCIAL VEGETABLE GROWING

Professor Snyder, Assistant Professor Tuttle, Mr. Johnson

There are many opportunities for both men and women who complete the Stockbridge School vegetable growing courses. These include the operation of a market garden, truck crop, or greenhouse business; skilled employees of commercial operators; operators or trained employees in the many types of wholesale and retail marketing; employees in responsible positions on private estates, private and state institutions as well as with commercial companies handling agricultural products such as fertilizers, seed and various supplies and equipment.

The production and marketing of vegetable crops is a highly specialized business involving a background of technical training as well as a knowledge of practical skills. The staff and facilities of the Department of Vegetable Growing are well qualified and adequate to give a thorough training to students in the fundamentals essential to growing, harvesting and marketing the many vegetable crops commonly grown in New England.

In addition to the facilities of the Department, trips will be made to several production areas and markets to observe actual operations.

Trains For Jobs Like These:

Skilled workers on market garden and truck farms, growers of commercial vegetable crops in greenhouses, cold frames, and fields. Operating all types of farm machinery, tractors, cultivators, seeders, both motor and horse-drawn; preparing crops for market, sorting, grading, bunching, packing. Wholesale and retail sales and distribution. Workers for seed-growing firms, plant breeding and field work on testing plots. Operators, owners, managers of vegetable crop farms. State and federal market inspectors on commercial grades and packs. Buyers and inspectors for dehydration and quick freezer plants. Institutional farm managers.

Field trips will be required during the two years at an estimated cost of $40 per student.

Commercial Vegetable Growing

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Floriculture S3 (Greenhouse Construction and Heating)
Fruit Growing S1 (Growing Tree Fruits)
Public Speaking S1
Vegetable Growing S1 (Principles of Vegetable Culture)
Vegetable Growing S3 (Systematic Vegetable Growing)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)
Floriculture S2 (Greenhouse Management and Propagation)
Fruit Growing S2 (Orchard and Vineyard Pruning)
Poultry Husbandry S10 (General Course)
Public Speaking S2
Vegetable Growing S2 (Principles of Vegetable Culture)
Vegetable Growing S12 (Diseases, Insects, and Their Control)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S1 (Farm Motors)
Agricultural Engineering S9 (Drainage and Farm Structures)
Beekeeping S1 (Fall Management, Wintering, Honey, and Bee Diseases)
Business English S1
Fruit Growing S7 (Small Fruits)
Vegetable Growing S5 (Market Practices)
Vegetable Growing S7 (Commercial Vegetable Growing)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

Beekeeping S2 (Spring Management, Pollination and Honey Production)
Farm Management S2 (Farm Management and Accounts)
Food Technology S2 (Basic Principles, Freezing, Canning and Pickling)
Fruit Growing S4 (Fruit Pests and Spraying)
Vegetable Growing S4 (Vegetable Forcing)
Vegetable Growing S6 (Marketing Methods)
Vegetable Growing S8 (Commercial Vegetable Growing)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

VEGETABLE GROWING S-1. (Principles of Vegetable Culture) I.

Lecture periods are devoted to discussions covering certain fundamental principles of plant structure and growth as they influence and regulate commercial vegetable culture. The work in the laboratory includes detailed studies in seedage, plant growing, manures and fertilizers, garden planting, pests, storage and marketing.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR TUTTLE.

VEGETABLE GROWING S-2. (Principles of Vegetable Culture) II.

Lectures are devoted to discussions of the more important environmental factors of the soil and climate which regulate plant growth and reproduction, including water, temperature, light, humidity and wind.

3 class hours a week. Credit, 3.

PROFESSOR SNYDER AND MR. JOHNSON.

VEGETABLE GROWING S-3. (Systematic Vegetable Growing) I.

This course is designed to acquaint the student with the identification, nomenclature and classification of the standard types and varieties of vegetables; judging and exhibiting; seed production and variety improvement work.

1 class hour 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR TUTTLE.

VEGETABLE GROWING S-4. (Vegetable Forcing) II.

A study of the principles and practices involved in growing, harvesting and marketing of vegetable crops commonly grown in forcing structures, especially tomatoes, cucumbers, lettuce, mushrooms and rhubarb. Discussions will also include the growing and handling of vegetable plants for field setting, in plant houses, hotbeds and cold frames.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR TUTTLE.

VEGETABLE GROWING S-5. (Marketing Practices) I.

A study of the various factors and practices involved in harvesting, preparing for market (bunching, tying, wrapping, waxing), grading, packaging, packages used, brands and inspection of vegetables for various market outlets as well as packing house facilities and storage. Trips to nearby and Boston markets will cost approximately $10.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR SNYDER.

VEGETABLE GROWING S-6. (Marketing Methods) II.

A continuation of the studies in S-5 covering the marketing of vegetables with emphasis on advertising, salesmanship, roadside markets, wholesale and retail outlets, market reports and transportation by truck, rail and plane.

3 class hours a week. Credit, 3.

PROFESSOR SNYDER.

VEGETABLE GROWING S-7. (Commercial Vegetable Culture) I.

Problems and practices of the commercial grower are discussed as they involve seedage, planting, cultivation, irrigation, tools, machinery, farm organization, and management.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

MR. JOHNSON.

VEGETABLE GROWING S-8. (Commercial Vegetable Culture) II.

This is a continuation of Vegetable Growing S-7 in which the discussions involve the cultural practices for the various vegetables that are of commercial importance in the New England area. Organized trips to market gardening areas are required which cover a period of approximately three days and cost about $30.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR TUTTLE.

VEGETABLE GROWING S-9. (General Course) I.

This course is designed to meet the needs of students in other majors who cannot devote more than one semester to a study of vegetable growing. Attention is to be given to starting plants early, transplanting, seeding, fertilizing, spraying, dusting, harvesting, marketing, and storing the more important vegetable crops.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

MR. JOHNSON.

VEGETABLE GROWING S-12. (Diseases, Insects and Their Control) II.

This course is intended to give those students majoring in vegetable growing an understanding of the more common insects and diseases which attack vegetable plants and the most satisfactory methods for controlling these pests.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

ASSISTANT PROFESSOR TUTTLE.

FINE TURF MAINTENANCE

Associate Professor Dickinson, Mr. Cornish

There is an immediate need for skilled supervisory assistants to park, cemetery, and recreation area superintendents. Municipal and private golf clubs are expecting that their superintendents shall be trained in fine turf maintenance. Every city and large town offers splendid opportunities for the private business horticulturist who is especially well trained to "take care of the lawn."

As the many proposed memorial parks, play fields, public buildings, and golf courses are being constructed and completed, the demand for specialists in turf maintenance will be increased and the number of replacements needed annually will be large.

This course is arranged and taught in such a manner that a student who has completed the work will be well qualified to accept a position as assistant or the actual superintendency of a small park, cemetery, or golf course, or to establish a business in his community.

Laboratory and field exercises give practical experience and demonstrations. Good equipment is supplemented by loans from manufacturers and supply houses. The supporting courses are strong and have been carefully chosen for their close alliance to the problems of turf maintenance and general estate work.

Each student's placement training and special interest will be considered in his chosen field, whether it be park, cemetery, golf course, or private business, and professional men will visit the classes to give of their experiences. Every student will be required to keep a record of work done, results obtained, and observations made during the placement training period, for use during the senior year.

Trains For Jobs Like These:

Assistant to superintendent of cemeteries, city parks, golf courses, recreation areas, college and private school athletic fields and grounds, estate gardeners, commercial nurseries and landscape service.

At least one field trip will be required during the second semester of the senior year. The total cost of such a trip or trips to each student will not exceed $20.00.

Fine Turf Maintenance

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)

Agrostology S1 (Orientation Course)

Agrostology S3 (Uses and Requirements of Turf Areas)

Arboriculture S1 (Lectures)

Floriculture S1 (Garden Materials)

Horticulture S1 (Plant Materials)

Public Speaking S1

Physical Education S1 (Required of men students not participating in football)

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)

Agrostology S2 (Construction of Fine Turf Areas)

Agrostology S4 (Maintenance of Fine Turf Areas)

Arboriculture S2 (Lectures)

Botany S2 (Diseases of Trees and Shrubs)

Entomology S6 (Turf Insects)

Public Speaking S2

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S3 (Farm Shop)
Agrostology S5 (Application of First Year Courses)
Agrostology S7 (Disease Controls)
Business English S1
Horticulture S3 (Surveying and Mapping)
Horticulture S7 (Grounds Maintenance)
Physical Education S5 (Required of men students not participating in football)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S2 (Motors)
Agrostology S6 (Fine Turf Maintenance as a Business)
Agrostology S8 (Drainage and Equipment)
Floriculture S8 (The Uses of Herbaceous Plants)
Horticulture S4 (Landscape Construction Problems)

Electives

Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Agrostology S-1. (Orientation Course) I.

An orientation course to furnish background for following courses: The physiology of the grass plant, the human factor as related to turf growing, are examples.

3 class hours a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-2. (Construction of Fine Turf Areas) II.

Construction of fine turf areas. Influence of foundation, subsoil, and topsoil zones. Talks preliminary to placement training. Adaptation of Agronomy S1.

3 class hours a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-3. (Uses and Requirements of Turf Areas) I.

Uses and requirements of turf areas. Grass seed and plant characteristics, identification and adaptation. Germination of seeds and growing of plants.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Mr. Cornish.

Agrostology S-4. (Maintenance of Fine Turf Areas) II.

Maintenance of fine turf areas. Fertilizing, weeds, clipping, and watering, with practical work and problems. Adaptation of Agronomy S2.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Mr. Cornish.

Agrostology S-5. (Application of First Year Courses) I.

Thorough resume of the summer work by students, discussing labor, operations, equipment, and results. Application of first year courses.

3 class hours a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-6. (Fine Turf Maintenance as a Business) II.

Fine turf maintenance as a business. Costs, purchasing, and reports.

3 class hours a week. Credit, 3.

Associate Professor Dickinson.

Agrostology S-7. (Disease Controls) I.

Diseases, weeds, and insect pests, with their controls.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Mr. Cornish.

Agrostology S-8. (Layout and Construction of Fine Turf Areas) II.

Construction of recreational areas, athletic fields, airports and cemeteries is studied in detail from the fine turf viewpoint. The design of golf courses is introduced. Contracting law and financing of fine turf construction contracts are discussed.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Mr. Cornish.

FLORICULTURE

Professor Thayer, Assistant Professor Hubbard, Assistant Professor Ross, Mr. Dunham

Students who complete the course in Floriculture are fitted primarily for work in commercial and private estate greenhouse establishments and retail flower stores. After gaining experience such students may be able to start in business for themselves. With the courses in Ornamental Horticulture they should also be qualified for positions on private estates, in parks, or in nurseries.

The offices and classrooms of the Department are located in French Hall. Of the two lecture rooms, one will accommodate 40 students, the other 30 students; a laboratory, equipped with slate-covered tables, will accommodate 36 students; the greenhouse laboratory for 20 students provides excellent facilities for much of the practical work. In the basement of the building there are located a specially prepared room for bulb storage, a fertilizer and tool room, and a large room for general storage purposes.

The glass area of the Department consists of approximately 14,000 square feet divided as follows: (1) the French Hall range of 11,800 square feet, a modern, practical, commercial range including propagating, palm and fern, sweet pea, carnation, rose and student houses; (2) approximately 2,200 square feet in cold frames and hotbeds. In addition, the Department has the use of the materials in the Durfee Plant Houses, an old range of 7,400 square feet, which houses primarily a collection of tropical, decorative, and other conservatory plants.

Land is available for the outdoor culture of florists' crops. A small perennial garden and a small rose garden are also maintained.

Trains For Jobs Like These:

Skilled workers in commercial greenhouses and on private estates, growing all types of flower crops; wholesale and retail florists, growers, salesmen, managers; flower arrangement work, designers and decorators in retail flower stores; salesmen for florists' supplies and equipment.

Students who major in Floriculture are required to purchase in the first semester of the first year, Bailey's Standard Cyclopedia of Horticulture, estimated at $25.00.

Field trips will be required during the two years at an estimated cost of $20.00.

Floriculture

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Floriculture S1 (Garden Materials)
Floriculture S3 (Greenhouse Construction and Heating)
Horticulture S1 (Plant Materials)
Public Speaking S1
Vegetable Growing S1 (Principles of Vegetable Culture)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S2 (Insect Pests of Ornamental Trees, Shrubs, and Flowers)
Floriculture S2 (Greenhouse Management)
Horticulture S2 (Plant Propagation)
Public Speaking S2
Vegetable Growing S2 (Principles of Vegetable Culture)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S3 (Farm Shop)
Business Management S1 (Fundamentals of Business Management)
Floriculture S5 (Commercial Production)
Floriculture S7 (Flower Arrangement)
Fruit Growing S7 (Small Fruits)
Horticulture S7 (Grounds Maintenance)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

Business English S2
Floriculture S6 (Commercial Production)
Floriculture S8 (The Uses of Herbaceous Plants)
Floriculture S10 (Conservatory Plants)
Horticulture S6 (Plant Materials)
Vegetable Growing S4 (Vegetable Forcing)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Floriculture S-1. (Garden Materials) I.

This course is intended for students who will take up private estate work or who will specialize in floriculture. It includes a study of the annuals, biennials, herbaceous perennials, and bedding plants which are commonly used in commercial floriculture and in private estate work. Methods of propagation, culture and uses are considered. Laboratory exercises include work in propagation, planting, study of materials, and planning of beds and borders.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Mr. Dunham.

Floriculture S-2. (Greenhouse Management) II.

A study of the principles of greenhouse management including the consideration of soils, fertilizers, watering, ventilation, temperature regulation, insect and disease control.

3 class hours and 1 2-hour laboratory period a week. Credit, 4.

Assistant Professors Hubbard, Ross, and Mr. Dunham.

Floriculture S-3. (Greenhouse Construction and Heating) I.

The origin, growth, and importance of the floricultural industry; types of greenhouses, types of construction, painting, glazing, ventilators, beds and benches, and methods of heating. Trips may be taken to visit greenhouse ranges in the vicinity of Amherst with university transportation.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Professor Thayer.

Floriculture S-5 (Commercial Production) I.

Courses S-5 and S-6 are devoted to a consideration of the important commercial crops. Special attention is given to the culture (under glass) of carnations, roses, chrysanthemums, sweet peas and snapdragons. Other cutflower crops and seasonal pot plants are also considered. Modern methods of production including soilless culture and subirrigation practices are discussed in detail.

All members of the class are required to take a one-day trip to visit a large commercial greenhouse range at an approximate cost of ten dollars each.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Assistant Professor Hubbard.

FLORICULTURE S-6. (Commercial Production) II.

A continuation of Floriculture S-5.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR HUBBARD.

FLORICULTURE S-7. (Flower Arrangement) I.

The lectures include a discussion of the principles and techniques underlying the use of flowers in corsages, wedding bouquets, vase, bowl, and basket arrangements, table decorations, funeral designs and sprays, and decorations for public functions. The study of color and color harmonies is also considered in this course. The laboratory periods provide opportunity for actual practice in making the various types of arrangements which are considered in the classroom.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR ROSS.

FLORICULTURE S-8. (The Uses of Herbaceous Plants) II.

This course is a continuation of Floriculture S-1 and is intended for students specializing in floriculture and ornamental horticulture. It provides opportunity for a more detailed study of many of the plants considered in the preceding course with special emphasis on their uses in gardens and in other types of landscape planting. Lectures, assigned readings, study and identification of plants, planning of borders and gardens.

Students enrolled in this course may be required to take a one day trip to the Boston Spring Flower Show at an approximate cost of ten dollars.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

ASSISTANT PROFESSOR HUBBARD AND MR. DUNHAM.

FLORICULTURE S-10 (Conservatory Plants) II.

A study of the plants, both foliage and flowering, which are used in conservatories and in decorative work. Methods of propagation, culture, uses and identification of plants are included in the course. Trips may be taken to visit the conservatories at Smith and Mount Holyoke Colleges with university transportation.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

PROFESSOR THAYER AND MR. DUNHAM.

FOOD MANAGEMENT

Professor Fellers, Assistant Professor Levine, Assistant Professor Kranz, Dr. Fitzpatrick

Food management work in all its various trade sub-divisions is closely allied to food production work. Purchasing agents for wholesale and retail food chains must know vegetables and fruits of all kinds, meats, and dairy products such as milk, butter, cheese and ice cream; poultry products such as fowl, ducks, turkeys, and all kinds of eggs and egg products. This same knowledge of superior grades, varieties, and packs of all agricultural products, as well as the modern methods of cooling, freezing, preserving, processing, and serving, is highly essential to the hotel and restaurant industry for its supply of future managers, stewards, and operators. Lunchroom, tearoom, and all summer resort operators should have thorough training in the procurement of food supplies of superior quality if trade competition and public demands are to be efficiently and economically controlled.

Modern methods of food processing including canning, freezing, dehydration and packaging, place a greater responsibility on institutional buyers. Sound knowledge in food production methods may be considered essential to the complete training of stewards, food managers, and restaurant operators. Railroad and aviation dining service offer large new fields for food management efficiency and service.

Planning of menus and preparation of food is studied and practiced in this course, along with a complete survey of the whole food production program in agriculture. The excellent equipment of the farms, orchards, food technology laboratories and dining halls, is a major factor for thorough training which this University provides.

This course is sponsored by the Massachusetts Hotel Association and by the Massachusetts Restaurant Association whose members are cooperating in the placement and employment of students and graduates. The Boston Stewards Club has generously donated an annual scholarship prize fund and the state hotel association has established a loan fund for student aid.

The Food Management course is given with the cooperation of the University dining halls under the management of Mr. Walter O. Johnson.

Trains For Jobs Like These:

Assistant cooks, cooks, stewards, in restaurants, cafeterias, hotels, country inns and vacation resorts serving both summer and winter clientele. All New England states have a huge business in their country areas providing home-grown foods and food products for the year-round vacation trade. Many farm homes and boarding houses rely on this type of business for a considerable part of their income. New England foods from shore and farm have earned a distinctive quality which this course seeks to maintain.

For butchering and dressing all kinds of livestock, and preparation of commercial meat cuts and products. For quick freezing all types of farm products for commercial sale or for freezer locker plants, their operation and maintenance. For work in canning and preserving plants.

Field trips will be required during the two years at an estimated cost of $52.00 per student.

Food Management

First Year

First Semester

(Sixteen Weeks Resident Instruction)
Foods and Nutrition S1 (Basic Principles of Food Preparation)
General Mathematics S1
Introduction to Stewarding S1
Poultry S9
Practical Science S7
Public Speaking S1
Vegetable Growing S5 (Marketing Practice)
Hygiene S1 (Required of women students)
Physical Education S1 (Required of men students not participating in football; also required of women students)

Second Semester

(Sixteen Weeks Resident Instruction followed by four months Placement Training)
Agricultural Economics S4 (Marketing)
Agricultural Engineering S12 (Food Handling Equipment)
Food Technology S2 (Basic Principles and Freezing)
Practical Science S8
Public Speaking S2
Quantity Foods S2
Special Lectures S2
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)
Bacteriology S3 (Food Sanitation)
Entomology S3 (Structural Pests)
Foods and Nutrition S3 (Elementary Nutrition)
Food Technology S5 (Food Manufacturing)
Fruit Growing S11 (Fruits and Fruit Handling)
Kitchen Administration S1
Storekeeping S1
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)
Animal Husbandry S8 (Food Management Meats)
Business English S2
Dairy S8 (Judging, Testing, and Processing of Milk, Cheese, Butter and Ice Cream)
Foods and Nutrition S2 (Meal Preparation and Service)
Food Service S2
Hotel Accounts S2
Special Lectures S4

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

AGRICULTURAL ECONOMICS S-4. (Marketing) II.

This course is designed to give instruction in purchasing and in management for Hotel Stewards. A study of the distribution system for food products will be given as well as merchandising practices, store location, advertising and personnel management.

2 class hours a week. Credit, 2.

PROFESSOR LINDSEY.

AGRICULTURAL ENGINEERING S-12. (Food Handling Equipment) II.

This course covers the mechanical equipment used in hotel management. It includes a study of refrigerators, cleaning equipment, electric ranges, pumps, steam boilers, and miscellaneous steam equipment; and the care and maintenance of electric appliances, including electric motors. Practice will be given in wiring, soldering, and pipe fitting.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

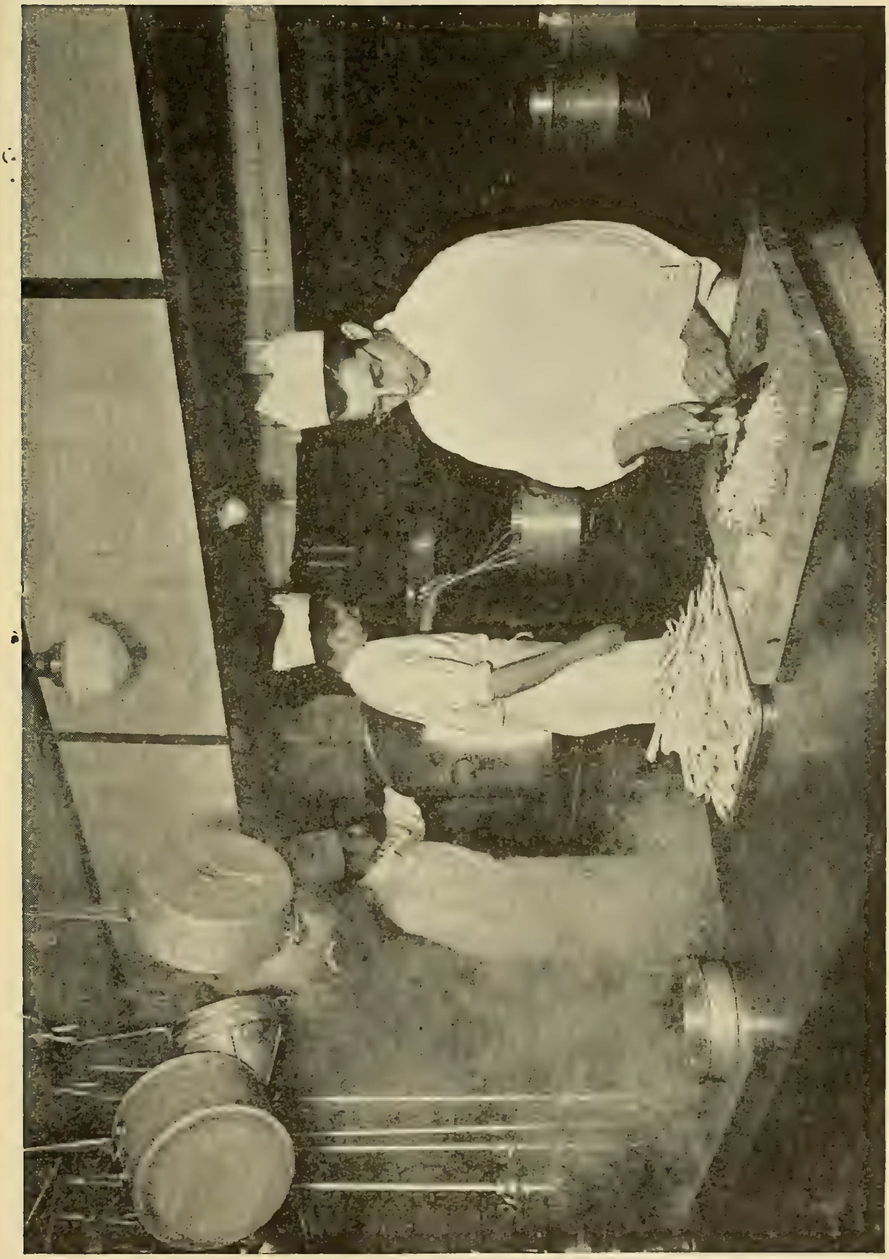
ASSISTANT PROFESSOR TAGUE.

ANIMAL HUSBANDRY S-8. (Meats Course) II.

For Seniors in the Food Management Course. This course is designed to impart a knowledge of the fundamental principles involved in judging, purchasing, and efficiently utilizing meat and meat products. Laboratories will involve actual slaughtering, dressing, wholesale and retail cutting, and preparation of by-products. Judging practice will be secured in a near by packer cooler and at the end of the course a one day trip costing $10.00 will be scheduled to several large packing houses in Boston. Textbook: Ziegler, "The Meat We Eat." Special equipment needed for this course includes knives, boots, and wash suits,—estimated cost $15.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR HALE.



A Laboratory Exercise in Food Management—University Cafeteria

BACTERIOLOGY S-3. (Food Sanitation) I.

This course includes a general study of micro-organisms responsible for the common diseases of man and the methods employed in their detection and control. It introduces the student to the application of bacteriological principles in the analysis of water, milk and milk products, and other food substances. Bacteria, molds, and yeasts are studied as living agents responsible for the decay, spoilage and infection of foods. The importance of the proper control of these living agents in the production and ripening of certain foods is considered. The conditions necessary for microbial growth and factors responsible for the universal distribution of micro-organisms are studied. The application of sanitation, chemical preservatives and physical and environmental conditions in the control of food infection or spoilage is discussed and demonstrated.

This course is designed to give students interested in the practical problems of food sanitation, spoilage, handling, and preservation a better understanding of bacteria and an appreciation of their importance in the sanitary production and handling of foods.

Laboratory discussions, exercises, and demonstrations.

2 3-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR PERRIELLO.

DAIRY S-8. (Judging, Testing, and Processing of Milk, Cheese, Butter, and Ice Cream) II.

Work will be given on the importance of dairy products—their composition and food value. A careful study will be made of market grades—what they are and how arrived at. Ample laboratory work will be given in judging dairy products, to familiarize the student with the various grades and packs of all dairy products. A special study will be made of practical tests that can be used in determining quality of milk, of ice cream, of cheese, and of butter.

The course will also include a limited amount of practice work in the pasteurizing and processing of market milk, in the making of ice cream, or butter, and of cheese, particularly the soft cheeses, in order to provide a basis for the more intelligent selection of dairy products.

The course is arranged especially for those interested in foods and food processing as applied to hotel and restaurant work.

During the semester a trip will be made to leading dairy wholesale markets in Boston, at an estimated cost of $10.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR LINDQUIST AND ASSISTANT PROFESSOR NELSON.

ENTOMOLOGY S-3. (Structural Pests) I.

This course is offered during the last eight weeks of the first semester. General introduction to Entomology, followed by studies and discussions of more important pests with which hotel stewards would come in contact.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

PROFESSOR SWEETMAN.

FOODS AND NUTRITION S-1. (Basic Principles of Food Preparation) I.

This course aims to teach the basic scientific principles of food preparation. It will include standards for finished products, conservation of nutritive values, foundation recipes, food materials, actual preparation of typical foods and recent developments in food preparation.

2 3-hour laboratory periods a week. (Includes class hour) Credit, 4.

MISS DAVIS.

FOODS AND NUTRITION S-2. (Meal Preparation and Service) II.

This course is a further study of nutritive value and preparation of food with emphasis on planning, preparation of meals and meal service. Some emphasis is placed upon the organization and executing of chefs' and stewards' duties as they exist in restaurant and hotel set-ups. All food preparation is limited to small quantities. Types of menus will be prepared.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

MISS DAVIS.

FOODS AND NUTRITION S-3. (Elementary Nutrition) I.

This course is designed to give a general survey of the fundamental principles on which the normal person may plan an adequate dietary. It includes a study of the nutritive value of foods so as to make wise selection possible.

3 class hours a week. Credit, 3.

ASSISTANT PROFESSOR COOK.

FOOD SERVICE S-2. II.

Kitchen and restaurant equipment, quantity and formula cooking, steward employee relationship, steward-purveyor relationship. Psychology applied to personnel management, conferences, work supervision, advancement, opportunities. Responsibilities of a steward; health and safety sanitation; labor and food laws.

1 class hour and 1 4-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR KRANZ.

FOOD TECHNOLOGY S-2. (Basic Principles, Freezing, Canning and Pickling) II.

Principles of food preservation including refrigeration and modern locker storage management are covered. Work is given in the use of packaging materials and the examination and grading of food products. Three field trips will be required. Estimated cost $10.00.

1 class hour and 1 4-hour laboratory period a week. Credit, 3.

DR. FITZPATRICK.

FOOD TECHNOLOGY S-5. (Food Manufacturing) I.

Class work consists of study and laboratory exercises on phases of the food industry of major interest to the students. The studies include food preservation methods, manufacture of carbonated beverages, pickled products, confectionery production and commercial bakery procedures and operations. Some field trips to local commercial food plants will be made.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR LEVINE.

FRUIT GROWING S-11. (Fruits and Fruit Handling) I.

This course is designed primarily for students who are specializing in Food Management. It includes:

1. A study of common varieties of native fruits, citrus fruits, and bananas and the season during which each variety is at its best from the standpoint of the consumer.

2. A consideration of the factors which determine grades of various fruits.

3. A thorough study of storage qualities and methods of storing all fruits commonly used here.

A two-day field trip is a part of the course. Estimated cost, $10.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS.

GENERAL MATHEMATICS S-1. I.

This course provides a thorough drill in those fundamentals which are used in practical arithmetic. Fractions, ratio and proportion, percentage, formulas of area and volume, graphs, logarithms, and the use of the slide rule will be studied.

2 class hours a week. Credit, 2.

HOTEL ACCOUNTS S-2. II.

This course is a continuation of Storekeeping S1 with emphasis on bookkeeping. This will include study of the uniform system of accounts as recommended by the American Hotel Association; food costs and dining room and restaurant accounts.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR KRANZ.

INTRODUCTION TO STEWARDING S-1. I.

This course includes the following: Kitchen personnel; list of occupational divisions; duties of individuals; receiving, delivery, and shipping departments; food purchasing; markets; bookkeeping and budgeting; cleanliness and sanitation; duties of storekeeper and assistant steward.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR KRANZ.

KITCHEN ADMINISTRATION S-1. I.

The course will be a general study of the various problems arising in the operation of a commercial kitchen. Attention will be given to the planning and equipment of kitchens, food control and costs, and personnel problems. Beverages and their service; planning meals and menus. Field trips are made to near-by kitchens.

2 class hours a week. Credit, 2.

ASSISTANT PROFESSOR KRANZ.

POULTRY HUSBANDRY S-9. I.

This course covers candling and grading of eggs, market classification, a study of eggs in the local markets, dressing poultry and various ways of preparing poultry for the table. Prices and market operations form an active part of the course.

A one-half day class trip to the Springfield markets in December is required. Estimated cost, $2.00.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR VONDELL.

PRACTICAL SCIENCE S-7 and S-8. I. II.

This is a course in applied sciences, chiefly in the fields of chemistry and physics, as they are tools serving the needs of the dairy and food industries. In general, the course is designed to give an introduction to scientific thought and phenomena by means of lectures, textbook study and classroom demonstrations. The emphasis is entirely built around the practical problems in the student's field of work.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR EVERSON.

QUANTITY FOODS S-2. (Preparation and Service) II.

This course is planned to give the student an insight into the problems of the kitchen department of the hotel, restaurant or club. Students will be under the supervision of the manager of the Dining Hall and will be apprenticed to the regular employees at the University Dining Hall and will assist the cooks, baker, stock clerk, etc., during the laboratory periods. The course is planned so that each student will have the opportunity to do actual work in quantity food preparation and service.

2 4-hour laboratory periods a week Credit, 4.

ASSISTANT PROFESSOR KRANZ.

SPECIAL LECTURES S-2 and S-4. II.

Registration restricted to Food Management students. These lectures will be presented weekly by men within the hotel and restaurant industry and allied professions and by members of the university faculty. They will cover a variety of subjects all of which will be of interest and value to young people planning to enter the hotel and restaurant business.

1 class hour a week. Credit, 1

THE DEPARTMENT.

STOREKEEPING S-1. I.

This course aims to give the student an elementary working knowledge underlying the record system for keeping stocks and inventories. This includes receiving and disbursing stocks and records; also, perpetual inventories and food store management; refrigerator and dry storages.

1 class hour and 1 2-hour laboratory period a week. Credit, 2

ASSISTANT PROFESSOR KRANZ

VEGETABLE GROWING S-5. (Marketing Practice) I.

A study of the various factors concerned with the harvesting and marketing of vegetable produce, including grades, packs, packages, brands, market and inspection requirements.

3 class hours a week. Credit, 3.

PROFESSOR SNYDER.

About 129,000 citizens of Massachusetts are engaged directly in agricultural pursuits while a slightly larger number are engaged in "allied industries" which aid the farming industry by obtaining farm supplies and services for production, and then provide the services and facilities for marketing the farm products. This means approximately 100,000 jobs. From 3,000 to 5,000 replacements are required every year to maintain the industry.

APPLIED FORESTRY

Professor Holdsworth, Professor Trippensee, Professor Rhodes, Associate Professor Rich, Assistant Professor Stickel, Mr. Hadley, Mr. MacConnell, Mr. Cole

The two year course in applied forestry is intended to equip men with a sound understanding of the basic principles of forestry and their vocational application in the field.

The men who elect to take the course should fully understand that the vocation for which they are preparing will involve hard work, much of it physical in character. They should also keep in mind that a man trained in forestry techniques will be in a position to advance through apprenticeship to jobs of genuine responsibility.

There is a definite place in the broad field of forestry for trained workers who are capable of understanding and intelligently carrying out the tasks of a subprofessional character which are so necessary to forest maintenance and development.

Prospective students should have clearly in mind a very definite idea of the occupation they intend to follow upon completion of the course of study described here. Each student should have his own well defined employment goal.

Men who successfully complete the curriculum in applied forestry are qualified for places with timber growing and forest products industries, for supervision of forested estates, watershed properties, town forests and for work with certain public agencies which are concerned with forestry.

Facilities: The University owns 800 acres of woodland which is used for the laboratory and field studies of the Stockbridge School. It has ready access to a very considerable additional acreage in the neighborhood of Amherst.

Placement Training: The program of study and training requires the students of Applied Forestry to spend four months in placement training. The placement jobs in forestry often require the student to work at a considerable distance from this region.

Equipment: The Forestry Department has good technical equipment for field study purposes.

Student Limitation: Each entering class is limited to fifteen men.

Student Needs: In addition to the regular expense of the Stockbridge School, the student must be prepared to buy draughting equipment costing about $30.00, a hand compass costing about $7.00, and should be able to take several field trips, the cost of which will be about $50.00.

APPLIED FORESTRY

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Forestry S1 (Dendrology)
Forestry S5 (Forest Measurement)
Forestry S7 (Forest Physiology)
Review Mathematics S1
Physical Education S1

Second Semester

(Sixteen Weeks Resident Instruction Followed by Four Months Placement Training)

Business English S2
Forestry S2 Wood Identification)
Forestry S4 (Forest Draughtsmanship)
Forestry S6 (Forest Measurement)
Forestry S8 History of American Forestry; The Public Domain)

Electives

Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Forestry S11 (Silvics)
Forestry S13 (Harvesting)
Forestry S15 (Forest Protection)
Forestry S17 (Library Reading and Reports)
Horticulture S3
Physical Education S5 (Required of men students not participating in football)

Second Semester

(Sixteen Weeks Resident Instruction)

Forestry S10 (Forest Management)
Forestry S12 (Applied Silviculture)
Forestry S14 (Forest Products)
Forestry S16 (Seeding and Planting)
Forestry S18 (Wildlife Management)
Forestry S20 (Forest Insects and Diseases)

Electives

Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

Forestry S-1. (Dendrology) I.

Features of identification, classification and geographical distribution of the principal trees of North America together with a study of the vegetation regions of the United States and Canada.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Forestry S-2 (Wood Identification) II.

The gross structural and identification features of our most used North American woods. Laboratory practice in wood identification using macroscopic features.

2 2-hour laboratory periods a week. Credit, 2.

Forestry S-4. (Forest Draughtsmanship) II.

A course designed to teach the use of draughting equipment for purposes of map, chart and graph making. Instruction in lettering is included.

2 2-hour laboratory periods a week. Credit, 2.

Forestry S-5. (Forest Measurement) I.

Determination of the volume and value of forest growing stock by several approved methods. This involves the making of a chain and compass area survey, type mapping and the use of instruments used in forest estimating and growth studies.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

Forestry S-6. (Forest Measurement) II.

Continuation of and development of S-1.

3 class hours a week (or equivalent field work) Credit, 3.

Forestry S-7. (Forest Physiology) I.

The structure and physiological functions of forest trees and other forest vegetation. A classroom course with demonstrations.

3 class hours a week. Credit, 3.

Forestry S-8. (History of American Forestry; The Public Domain) II.

The story of the development of forestry in the United States; The Public Domain, its acquisition, partitioning and disposal.

2 class hours and 1 seminar hour a week. Credit, 3.

Forestry S-10. (Forest Management) II.

The management of American forests; the preparation of operational management plans. Class and field work.

2 class hours and 1 4-hour field period a week. Credit, 4.

Forestry S-11. (Silvics) I.

The forest qualities and requirements of forest trees, including a study of tree-growing site relationships, growth rates, tolerance, temperature, and moisture factors. Special emphasis is laid on the experience of others in the forest use of certain tree species.

3 class hours a week. Credit, 3.

Forestry S-12. (Applied Silviculture) II.

This course considers the several forest reproduction methods, the intermediate cuttings, together with extensive field practice in their application.

1 8-hour field period a week. Credit, 4.

Forestry S-13. (Harvesting) I.

The methods of harvesting forest products with special emphasis on means used in New England. A general survey of methods used in all of the forest regions of the United States.

2 class hours and 1 4-hour laboratory field period a week. Credit, 3.

Forestry S-14.(Forest Products) II.

The properties of American woods. The products of the forest industries.

3 class hours a week. Credit, 3.

Forestry S-15. (Forest Protection) I.

Methods of protecting the forest against fire and other forest-destructive agencies.

3 class hours a week. Field trips by arrangement. Credit, 3

Forestry S-16. (Seeding and Planting) II.

This course considers the production of forest planting stock in nursery; the characteristics and quality of forest tree seed; artificial reforestation.

1 class hour and 2 2-hour field and laboratory periods a week. Credit, 3.

Forestry S-17. (Library Reading and Reports) I.

Library reading and study on assigned forestry subjects. Designed to develop the ability to analyze forestry material and to abstract it clearly and concisely.

2 hours general seminar. Individual Conferences. Credit, 3.

Forestry S-18. (Wildlife Management) II.

Effects of animals on the forest; and the effects of forest practices on wild animal production.

3 class hours a week. Credit, 3.

Forestry S-20. (Forest Insects and Diseases) II.

A study of the characteristics of the principal forest insects and diseases and the nature of the damage they inflict or the good that they do in the forest.

3 class hours a week. Credit, 3.

Review Mathematics S-1. I.

A course having for its purpose the bringing into sharp focus the simple mathematics which is used in vocational forestry and without which such forestry cannot be intelligently practiced. Arithmetic, plane geometry and certain vocational uses of trigonometry are taught.

3 class hours a week. Credit, 3.

Although Massachusetts is predominately an urban-industrial state with 90 percent of its people living in towns and cities, agriculture is one of the top three industries of the State.

Ninety-five percent of Massachusetts' land area is open rural countryside. Ten percent of our population (about 430,000) live comfortably in these areas. About one-third of these rural folks (141,000) live on the 30,000 farms and depend upon agricultural production as the principal source of income.

The Massachusetts farm industry represents an investment in land, buildings, equipment and live stock of over 300 million dollars. Its gross income for 1946 was approximately 175 million dollars.

FRUIT GROWING

Professor French, Assistant Professor Roberts, Assistant Professor Anderson, Mr. James Anderson

The course in Fruit Growing prepares the student for successful participation in the activities of our many sided fruit industry. An essentially practical course, it emphasizes also the basic principles of plant growth which underlie sound cultural practices and the economic principles which bear upon marketing procedures and the business side of fruit growing. It provides a foundation on which increasing effectiveness may be developed through continued practical experience.

The University has about fifty acres of fruits easily reached from the classroom, and they are used freely for purposes of illustration and study. Most of the tree and small fruits commonly found in New England are grown here on a commercial scale. Many experiments and tests are in progress in the plantations, offering exceptional opportunities to the student for the practical study of plant reactions under many and varied conditions. Excellent commercial orchards near the campus provide a wealth of additional material for observation and study. Large markets are visited to afford valuable contacts with the main channels of crop distribution.

Equipment for instruction includes a modern storage and packing house in which there are several types of refrigerated and common storage, a quick freezing unit, and zero temperature holding rooms, all in operation within the University year. The principal types of orchard tools and machines, such as tractors, plows, harrows, cultivators, sprayers, dusters, and pruning and grafting tools are available for study and trial by students. Emphasis is placed on life histories and methods of control of all important insect, fungus and other pests. Materials used in pest control are studied in great variety.

Graduates of the course in Fruit Growing are found in positions of responsibility all over the Northeast. Some have established successful fruit farms of their own. Others, after gaining added practical experience, have risen to positions as managers or foremen in large orchards. Still others have entered the industrial field and are employed by supply and equipment firms or are engaged in marketing activities. Fruit Growing is an active and thriving industry which offers a field of continuing interest and many opportunities for profitable development to the earnest student.

Combination Courses: Fruit growing lends itself readily to combination with other branches of agriculture. The fruit course is already broad and includes most of the information likely to be needed by the student, but for special interests the following are suggested: Fruit Growing and Beekeeping, Fruit Growing and Live Stock, Fruit Growing and Poultry, Fruit Growing and Vegetable Growing, or small fruits with Floriculture or any of the above subjects.

Trains for Jobs Like These:

Skilled workers on fruit farms, operators, foremen, owners; packing house operators, managers of sales and distribution. Salesmen for commercial spray materials, orchard equipment, and fertilizers; fruit inspection and grading. Growers of specialty fruit crops.

Field trips will be required during the two years at an estimated cost of $25 per student.

Fruit Growing

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Engineering S1 (Farm Motors)
Agronomy S1 (Soil Management)
Forestry S3 (Woodland Management)
Fruit Growing S1 (Growing Tree Fruits)
Public Speaking S1
Vegetable Growing S1 (Principles of Vegetable Culture)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agricultural Engineering S14 (Repair of Farm Equipment)
Agronomy S2 (Fertilizers)
Fruit Growing S2 (Orchard Pruning)
Public Speaking S2
Poultry Husbandry S10 (General Poultry Husbandry)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Engineering S9 (Drainage and Farm Structures)
Beekeeping S1 (Fall Management, Wintering, Honey, and Bee Diseases)
Business English S1
Fruit Growing S5 (Harvesting, Packing, Storage and Marketing)
Vegetable Growing S7 (Commercial Vegetable Culture)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

Agricultural Economics S2 (Marketing)
Beekeeping S2 (Spring Management, Pollination and Honey Production)
Farm Management S2 (Farm Management and Accounts)
Fruit Growing S4 (Fruit Pests and Spraying)
Fruit Growing S6 (Advanced Fruit Growing)
Fruit Growing S8 (Small Fruits)
Vegetable Growing S8 (Commercial Vegetable Culture)

Electives

Physical Education S4 (For Women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

FRUIT GROWING S-1. (Growing Tree Fruits) I.

This course covers the planting and development of orchards and the management of bearing trees. The nature of the tree itself is stressed as the basis of sound cultural practices. The selection of sites and soils and varieties is studied for plantations of apples, pears, peaches, plums, and cherries. The handling of young trees to bring them into early profitable bearing is given special attention.

The culture of bearing orchards is studied in detail to give an understanding of the factors that influence yield and quality of fruit. Methods of soil management are considered with reference to their long-time effects on tree and soil. The experimental plots afford exceptional opportunities to study cultural methods and many subjects are discussed in the orchards.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR FRENCH AND MR. JAMES ANDERSON.

FRUIT GROWING S-2. (Orchard and Vineyard Pruning) II.

This course aims to give the student a thorough training in the underlying principles and the practice of pruning apples, pears, peaches, cherries, plums and grapes. The bearing habit of each fruit is studied as a basis for effective pruning. Practice pruning in the University orchards is stressed as an important feature of the course. Instruction and practice in budding and grafting are included in this course. Bridge grafting and top working are given special attention.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS AND MR. JAMES ANDERSON.

FRUIT GROWING S-4. (Fruit Pests and Spraying) II.

This course deals with the characteristics and behavior of insect and disease pests which attack fruit plants. Particular attention is given to the vulnerable points in their life cycles at which control measures are directed. A study of the principal spray materials and their uses is an essential part of the course.

The construction and care of spraying and dusting equipment is emphasized and students are required to use various types of implements in spraying and dusting trees in the orchard.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ANDERSON.

FRUIT GROWING S-5 (Harvesting, Packing, Storage, and Marketing) I.

Handling the crop from tree to consumer is the field covered by this course. Methods of harvesting and appliances used are studied in the orchards. Practice in packing the most popular containers forms a prominent part of the laboratory work.

The principles of common and refrigerated storage are considered in detail and storage house construction is discussed, with a critical examination of several storages in use on or near the campus. Marketing methods as they relate both to distant and to local markets are given special consideration. A two-day field trip is a part of the course. Estimated cost, $10.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS.

FRUIT GROWING S-6. (Advanced Fruit Growing) II.

This course involves a critical study of tree behavior as a basis for orchard management. Information acquired in other courses and in placement training is brought to bear on important orchard problems. It is the aim of the course to familiarize the student with conditions under which fruit must be grown here, with current thought on the more recent developments, and with adjustments which are being made in the fruit industry of the Northeastern States.

Each student must be prepared to take one or more trips to prominent orchards or to leading fruit sections of the Northeast. Estimated cost, $15.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ROBERTS.

FRUIT GROWING S-7. (Small Fruits) I.

This course is similar to Fruit S-8, but is given for students majoring in fields other than Fruit Growing.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ANDERSON.

FRUIT GROWING S-8 (Small Fruits) II. (For Fruit Majors Only)

There are many unusual opportunities in Massachusetts for success in growing small fruits. This course deals with the establishment and management of plantations of strawberries, raspberries, blackberries, blueberries, currants, cranberries, and grapes. The aim is to make the course of the utmost practical value as well as to give an understanding of the fundamental principles on which practices are based.

The University has plantations of these fruits except cranberries which are used freely for laboratory purposes. Berries which ripen in summer are frozen and held in excellent condition for study in this course.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR ANDERSON.

FRUIT GROWING S-9. (General Course) I.

This course is intended to meet the needs of students in other majors who can devote one semester only to the subject of Fruit Growing. It deals with the practical side of growing tree and small fruits for home use and market.

Special attention is given to such questions as selection of sites, choice of varieties, grafting, pruning, spraying, soil management, harvesting, and storing. (Horticulture and Poultry majors.)

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Mr. James Anderson.

Fruit Growing S-10. (General Course) II.

This course is a repetition of Fruit Growing S-9 primarily for the benefit of first year students who are specializing in Animal Husbandry.

4 class hours and 1 2-hour laboratory period a week. Credit, 5.

Mr. James Anderson.

To provide food enough for only "fairly adequate diets" for all of the people of the United States 10 years hence, would require as many poultry products as are now produced, more fruits, 50 percent more vegetables and a third more dairy products. Per capita consumption of these commodities is increasing. Fortunately these are the important farm products produced in Massachusetts.

Massachusetts farmers are producing more now than ever before,— in their 327 years of history. Whether or not Massachusetts agriculture will continue to expand and prosper with the increasing demands for our products, depends upon our ability to increase farm production efficiency through research, education, and the adoption of improved practices such as animal breeding and feeding, plant breeding and fertilization, saving labor, and raising part of our own feed nutrients through improved hay and pasture production.

ORNAMENTAL HORTICULTURE

PROFESSOR BLUNDELL, MR. PROCOPIO, MR. DURELL

The constantly increasing interest in development of grounds, both public and private, for use and enjoyment, has created a demand for men trained to handle the varied problems in the construction and maintenance of these grounds. The course in Ornamental Horticulture aims to make the student familiar with these various problems.

Men who have taken this course are to be found in such different jobs as foremen in nurseries, or proprietors of nurseries which they themselves have developed; superintendents on private estates, cemeteries, parks, and various public and private institution grounds; foremen for landscape construction firms, and some have organized their own business in landscape construction and grounds maintenance service.

With the whole campus as a laboratory, the student every day finds problems about him comparable to those he will meet when he goes out to work. The broad lawns, the walks and drives, the gardens, the greenhouses, the orchards, the vegetable plots, as well as the farms, supply all the various phases of work which will be encountered on estates, in parks, or in institution grounds. As far as practicable the student is given the opportunity to determine what these problems are and to solve them himself under expert supervision.

On the campus is to be found a large and excellent collection of mature trees, shrubs, and vines. From these plants the student is able to build up a background of plant knowledge; in identification; in propagation which is carried on in a special greenhouse for the purpose; in the handling of plants in various stages of their growth, in the nursery and on the campus; and in their ultimate care, pruning and protection against injuries of all kinds. Construction of roads, walks, drainage and other problems involving the moving of earth are especially valuable to those looking forward to landscape construction.

Trains For Jobs Like These:

Skilled workers in plant nurseries; gardeners, foremen or superintendents on private estates, public parks, cemeteries, and various public and private institution grounds such as state and government cantonments and hospitals, colleges and private schools; workers or foremen with landscape construction companies, real estate developments; owners and operators of small landscape maintenance businesses and nurseries, salesmen for seed and nursery concerns, plant propagators, town or city watershed foresters, botanic garden foremen.

Special requirements for students in Ornamental Horticulture are: Bailey's Standard Encyclopedia of Horticulture estimated at $25, and a draftsman's set estimated at $25.

Field trips will be required during the two years at an estimated cost of $20 per student.

Ornamental Horticulture

First Year

First Semester

(Sixteen Weeks Resident Instruction)

Agronomy S1 (Soil Management)
Agronomy S5 (Construction and Maintenance of Fine Turf Areas)
Floriculture S1 (Garden Materials)
Horticulture S1 (Plant Materials)
Public Speaking S1
Vegetable Growing S1 (Principles of Vegetable Culture)
Hygiene S1 (Required of women students)
Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)

Agronomy S2 (Fertilizers)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S2 (Insect Pests of Ornamental Trees, Shrubs, and Flowers)
Horticulture S2 (Plant Propagation)
Public Speaking S2
Vegetable Growing S2 (Principles of Vegetable Culture)
Physical Education S2 (Required of women students).

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

(Sixteen Weeks Resident Instruction)

Arboriculture S5 (Shade Tree and Shrub Pests)
Business English S1
Forestry S3 (Woodland Management)
Fruit Growing S9 (General Course)
Horticulture S3 (Surveying and Mapping)
Horticulture S7 (Grounds Maintenance)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

(Sixteen Weeks Resident Instruction)

Arboriculture S6 (Shade Tree and Shrub Pests)
Floriculture S2 (Greenhouse Management)
Floriculture S8 (The Uses of Herbaceous Plants)
Horticulture S4 (Landscape Construction Problems)
Horticulture S6 (Plant Materials)
Horticulture S8 (Grounds Maintenance)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)

HORTICULTURE S-1. (Plant Materials) I.

Study of evergreen and deciduous trees used in landscape work, their distinguishing characters, and culture, with special reference to nursery and planting practice.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

PROFESSOR BLUNDELL.

HORTICULTURE S-2. (Plant Propagation) II.

This course will present the principles of plant propagation with special reference to their application to plant materials in nursery and greenhouse practice. The lectures are concerned with careful explanation of seedage, cuttage, graftage, layerage and division. In the laboratory the student propagates plants by each of these methods.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

MR. PROCOPIO.

HORTICULTURE S-3 (Surveying and Mapping) I.

Practice in the use of simple surveying instruments as tapes, compasses and levels used in the measurement of land surfaces, and the application of these instruments in landscape construction.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

MR. DURELL.

HORTICULTURE S-4. (Landscape Construction Problems) II.

Continuation of Horticulture S-3, including the reading of landscape plans, figuring construction cost on grading work and garden construction problems, and setting stakes for landscape development from working drawings.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

MR. DURELL.

Ornamental Horticulture

Horticulture S-6. (Plant Materials) II.

Study of shrubs, both evergreen and deciduous, and woody vines, to enable the student to recognize the plants used in ornamental plantings and to familiarize him with the handling of these plants both in nursery practice and landscape work. A two-day field trip will be required. Estimated cost, $10.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Professor Blundell.

Horticulture S-7. (Grounds Maintenance) I.

A course based upon the formulation and study of a work program which considers those essential operations contributing to successful horticultural management of grounds. The care of woody ornamental plants is included under the following heads: planting, pruning, maintenance of soil fertility, winter protection, and pest control.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Mr. Procopio.

Horticulture S-8. (Grounds Maintenance) II. April 1—Close of School.

A continuation of Horticulture S-7, taking up spring practices in grounds maintenance and nursery culture. Laboratory work emphasizes the development of supervisory capacity. Follows the completion of Floriculture S-2.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Mr. Procopio.

RELATED SUBJECTS IN OTHER DEPARTMENTS

Agricultural Economics S-1. (Farm Economic Problems) I.

The purpose of this course is to introduce students to the more important economic problems facing New England farmers. Increasing competition with other farm sections, long-time movements of farm prices and farm profits, farm credit, farm taxation; tariffs and other farm relief measures are some of the problems to be considered.

2 class hours a week. Credit, 2.

The Department.

Agricultural Economics S-2 and S-3. (Marketing) I. II.

This course deals largely with economic problems arising out of marketing farm products. Particular attention is given to marketing methods used in New England and to the comparison of local methods with methods used by farmers in competing sections. Principles and methods of co-operative marketing used by successful co-operative associations are studied in detail in order to show how New England farmers may meet competition from associations in other sections, either as individual producers or as officers or members of local associations.

2 class hours a week. Credit, 2.

The Department.

Instruction in agricultural economics is given with a view toward presenting the business side, or economics of agriculture. The required course is divided into two parts given in separate semesters. The approximate division of subject matter for each semester is indicated.

Agricultural Economics S-5. (Dairy Business Accounting) I.

Business arithmetic and bookkeeping are given consideration. The mathematics of fat determination, ice cream mixes, etc., are studied. An understanding of elementary bookkeeping principles involved in milk distribution also forms a part of the course.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

The Department.

Agricultural Engineering S-1 and S-2. (Farm Motors) I. II.

This course is a study of the principles of the gasoline engine and its accessories, as used in trucks, automobiles, tractors, and stationary work. Instruction is given in the laboratory by lectures, demonstrations, and exercises. This course also deals with the application of electricity to agriculture including electric motors.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Tague.

Agricultural Engineering S-3 and S-4. (Farm Shop) I. II.

This course gives instruction in the care and use of carpenters' tools through bench work, repair of farm equipment, and building construction. Practice in building forms, mixing and placing concrete, framing, cutting rafters, etc., make up this portion of the subject. Instruction in welding, pipe fitting, soldering, arc and gas welding, and the use of machinists' tools for the repair of farm machinery and miscellaneous farm equipment, together with a study of pumps and water supply systems, make up the other portion of the work.

3 2-hour laboratory periods a week. Credit, 3.

Assistant Professor Newlon and Assistant Professor Pushee.

Agricultural Engineering S-6. (Dairy Mechanics) II.

This course is planned for men who are fitting themselves to take charge of dairy plants or allied lines of work. It includes a study of steam boilers, pumps, steam traps, water filters and softeners, belting, electric motors, milking machines, and refrigeration plants.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Assistant Professor Tague.

Agricultural Engineering S-8. (Farm Structures) II.

A study of building materials, details of construction, simple structural mechanics, and the principles of design applied to farm buildings is made. Each student will design in detail one of the major farm buildings in which he is particularly interested.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Associate Professor Markuson.

Agricultural Engineering S-9 and S-10. (Farm Structures and Drainage) I. II.

A study of building materials, details of construction, simple structural mechanics, and the principles of design applied to farm buildings is made. Each particularly interested.

About one-fourth of the time will be given to the study of land drainage and practice in the use of the engineer's level for the purpose of laying out and grading of drainage ditches.

1 class hour and 3 2-hour laboratory periods a week. Credit, 4.

Associate Professor Markuson.

Agricultural Engineering S-14. (Repair of Farm Equipment) II.

Instruction is given in welding, pipe fitting, soldering, gas and electric welding, and the use of machinists' tools for the repair of farm machinery and miscellaneous farm equipment, together with a study of pumps and water systems. (Fruit Growing majors.)

3 2-hour laboratory periods a week. Credit, 3

Assistant Professor Newlon.

Agronomy S-1. (Soil Management) I.

Every agricultural interest is vitally concerned with the soil, its adaptations and its management for plant production. This course treats of the selection of suitable soils for the special purposes of agriculture, horticulture and floriculture.

Laboratory includes training in the use and interpretation of the maps of the U. S. Soil Survey and in tests of soil texture, organic matter and soil acidity. Practical field work will be given in judging the crop adaptation and value of soils, and field demonstration of the use of tillage tools on the university farm.

As a field project the student will be required to make a study of some farm, nursery or florist's plant, from the standpoint of soil conditions and methods of soil management in relation to the enterprise as a whole.

2 class hours and 1 3-hour laboratory period a week. Credit, 3.

Assistant Professor Thayer and Mr. Zak.

AGRONOMY S-2. (Fertilizers) II.

This course deals with the origin, manufacture, purchase and use of commercial fertilizer materials. A study will be made of the interpretation of fertilizer formula, analysis and guarantee. Special attention will be given to the newer concentrated fertilizer materials and to those produced from atmospheric nitrogen. The laboratory work will give practice in the identification of fertilizer materials, in the caculation of fertilizer formulas, and in the preparation of fertilizer mixtures.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR THAYER AND MR. ZAK.

AGRONOMY S-4. (Field Crops) II.

The lecture hours of this course will be devoted to presentation and discussion of the most successful methods of fertilizing, cultivating, harvesting, and storing the field crops grown in New England. Special attention will be given to the choice of the best adapted varieties for the production of hay, pasture, corn, potatoes, and root crops.

The laboratory work will include the study of corn and potato varieties, identification of grass and weed species, and studies of purity and germination. Field observation of growing crops will be included as the season permits.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR THAYER.

AGRONOMY S-5. (Construction and Maintenance of Fine Turf Areas) I.

At the completion of this course the student should have a knowledge and appreciation of the requirements for the growing of lawns and sports turf.

He will have considered the construction of turf areas; seed identification, selection and sowing; the identification of turf grasses and their soil and fertilizer preferences, correct cultural practices, turf diseases and pests and their control.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSOCIATE PROFESSOR DICKINSON.

BACTERIOLOGY S-1. (Bacteriology and Rural Hygiene) I.

The reproduction, structure, growth, changes produced by the action of bacteria upon various substances and the methods by which disease producing bacteria of man and animals are disseminated will be studied. The proper use of disinfectants, vaccines and serums in the control and treatment of disease will be discussed. The purpose of the course is to present the problems of applied bacteriology in health, agriculture and industry. The sanitary production, handling and distribution of milk involving human and environmental contacts with a food often consumed raw is an important problem to be controlled by responsible citizens of the community. Discussions on milk include the various sources of milk infections, methods of controlling sanitary production and marketing and the detection and elimination of milk dangerous to the public health.

Water supplies are of especial importance to man. The construction of wells, cisterns, etc., will be briefly considered and the application of sanitary measures to prevent and control their pollution will be discussed. The proper treatment and disposal of private and municipal sewage presents a problem of no small importance. Work has been planned in this course to present some of the problems pertaining to the sanitary production and distribution of foods.

This course is designed to acquaint the student with the nature and importance of micro-organisms and thus better explain biological changes in nature and susceptibility to disease. (Animal Husbandry, Poultry and Dairy Manufactures majors.)

3 class hours a week. Credit, 3.

ASSISTANT PROFESSOR PERRIELLO.

BACTERIOLOGY S-4. (Dairy Bacteriology) II.

Bacteria and other micro-organisms are the responsible agents for changes which occur in milk, and for the contagion which sometimes causes disease. They are found in milk at times when leaving the udder. They get in with the dust and dirt while milking and they adhere to the dairy utensils which carry them over from one milking to the next. From the cow to the consumer there is the constant presence of these micro-organisms to contend with, on the one hand, and to foster on the other.

Many of these changes occuring in milk are undesirable, such as ropy milk, sour milk, bitter milk, tainted milk, etc. Many of these changes are encouraged as the ripening of cream for butter, of milk for cheese, of milk for milk drinks. The former are fought, the latter fostered.

Micro-organisms of typhoid fever, scarlet fever, diphtheria and other diseases find their way by means of milk to the consumer and produce epidemic forms of these diseases.

Various bacteriological tests for the estimation of the numbers and types of organisms in milk are studied. Special attention is given to the interpretation of results indicated by the standard plate, Breed, methylene blue, and Burri methods of testing milk quality. Laboratory procedures for the determination of special groups of bacteria not normally found in milk, such as fecal contaminants and heat resistant organisms, are discussed. The proper use of these methods will quickly enable one to locate the source of trouble and check any further continuance.

It is evident, therefore, that to handle milk and milk products safely it is desirable to know something of the agents which are the source of so much attention in the dairy. This indicates the nature of this course, which is required of all students who elect dairying as one of their special lines of work.

3 3-hour laboratory periods a week. Credit, 5.

ASSISTANT PROFESSOR PERRIELLO.

BEEKEEPING S-1. (Fall Management, Wintering, Honey, and Bee Diseases) I.

The students are given an opportunity for individual handling of bees in the early fall, and field studies are made of the bee colony and its organization. Studies and practice in fall feeding are followed by a similar treatment of winter protection and the bees are then prepared for winter. During the latter part of the semester the surplus honey is extracted and prepared for market, a laboratory study made of the product and, finally, the commoner bee diseases are discussed and methods of control pointed out.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR SHAW.

BEEKEEPING S-2. (Spring Management, Pollination, and Honey Production) II.

The first part of the semester is occupied in assembling and studying the equipment used in beekeeping, but as soon as the weather permits, work is resumed on the bees in the apiary. Studies are made in spring management; pollination in the apple orchards is particularly stressed, and attention is then turned to the preparation of the colonies for honey production.

Throughout the entire course, wherever possible, the work is made practical and individual, enough theory being given so that the student will understand the reasons for his manipulations.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR SHAW.

BOTANY S-1. (Tree Physiology) I.

A study of the living tree is provided in this course. Functions of tree roots, leaves and trunk in obtaining and using water, air and nutrient materials are considered. Included among the vital activities of trees are: (a) chemical changes in building up, transfer, and breaking down of tree substances; (b) changes involved in growth, development, and reproduction; (c) changes in response to external stimuli.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR KOZLOWSKI.

BOTANY S-2. (Diseases of Trees and Shrubs) II.

This course is planned for students in Horticulture. It deals with the nature and causes of disease in plants; types of disease affecting trees, shrubs, and herbaceous plants; methods of combating plant diseases.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

MR.——————.

BUSINESS ENGLISH S-1 and S-2. I. II.

This course is designed to cover review work in the fundamentals of grammar and composition, and to give students training and practice in writing various types of business letters, reports, advertising copy, and news articles relating to their special fields.

3 class hours a week. Credit, 3.

ASSISTANT PROFESSOR DUBOIS, MR. MARCUS, MRS. WRIGHT.

BUSINESS MANAGEMENT S-1. I.

This course is designed primarily for students majoring in Floriculture. It involves a study of records and accounts used by florists; costs and prices; uses of capital and credit; house and store management; advertising; buying and selling; economic use of labor and equipment; general business trends as affecting the flower business; how the florist should make adjustments to meet economic changes; analyses of going concerns; and finally a bringing together of all information studied and applying it to the successful organization of a business. The entire course is to be made as applicable and practical as possible.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR BARRETT.

BUSINESS MANAGEMENT S-3. I.

This course is designed primarily for students majoring in Dairy Manufactures. The principles of business organization and management are considered in relation to the successful operation of a dairy plant. The course includes a study of the following: various records and accounts used by dairies; costs and prices; uses of capital and credit; economic trends as affecting the business; how to make adjustments in the business to meet economic changes; analyses of different types of going concerns; and finally a bringing together of all the information studied and applying it to the successful organization of a business.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR BARRETT.

ENTOMOLOGY S-2. (Insect Pests of Ornamental Trees, Shrubs, and Flowers) II.

A course designed to acquaint the student with the major pests of the plants mentioned. Class will be divided: Arboriculture and Ornamental Horticulture students in Section I; Floriculture students in Section II.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

ASSISTANT PROFESSOR SHAW.

ENTOMOLOGY S-6. (Turf Insects) II.

A course designed to acquaint the student with the principal pests of turf. General introduction to Entomology, followed by study of specific pests of turf.

1 class hour and 1 2-hour laboratory period a week. Credit, 3.

ASSISTANT PROFESSOR HANSON.

FARM MANAGEMENT S-1 and S-2. (Farm Management and Accounts) I. II.

The work in this course involves a study of farm records and accounts; costs and prices of farm products; uses of capital and credit; types of farming, selection of crop and live stock enterprises; size, diversity and production as related to the successful farm business; farm layout and arrangement; economic use of labor, power and equipment; detailed analysis of both successful and unsuccessful farms, how the farmer should make adjustments to meet economic changes; and finally, a bringing together of the information gained and applying it to the successful organization of a farm business.

Actual farm records are used to illustrate the above points. The entire course is made as applicable and practical as possible.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

PROFESSOR BARRETT.

Note.—Farm Management will be given both semesters. The first semester will be for students majoring in Animal Husbandry; the second semester for students majoring in Poultry Raising, Fruit Growing and Vegetable Growing.

FARM MANAGEMENT S-3. (Efficiency in Farming Operations) I.

For Freshmen. This is an introductory course to the regular Farm Management work which comes in the second year. It is in no sense a theoretical consideration but rather a study of the practical aspects of the efficiency of the many day-to-day jobs found on various types of farms. In brief, a careful analysis is made of the "one best way" of doing the jobs. The course involves a study of farm layout, building layout, economical use of machinery and equipment, and efficiency in hand operations. The primary objective is to point out ways of reducing farm labor costs. Motion pictures will be used to illustrate good methods versus poor or inefficient methods.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

PROFESSOR BARRETT.

FOOD TECHNOLOGY S-2. (Basic Principles, Freezing, Canning and Pickling) II.

Principles of food preservation including refrigeration and modern locker storage management are covered. Work is given in the use of packaging materials and the examination and grading of food products. Three field trips will be required. Estimated cost $10.00.

1 class hour and 1 4-hour laboratory period a week. Credit, 3.

MR.——————.

FOOD TECHNOLOGY S-4. (Special Products) II.

The class and laboratory exercises in this course are planned to meet the needs of students majoring in Dairy Manufactures. General principles of food preservation and their application to the subject of dairying are discussed in class exercises. Crushed fruits, fruit juices, syrups, flavored syrups and other products which are utilized in the dairy trade are manufactured and tested.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ASSISTANT PROFESSOR LEVINE.

FORESTRY S-3. (Woodland Management) I.

The first part of this course is devoted to the study and practice of the principles of timber volume estimating and forest mapping. The second part deals with the silvicultural management of the forest. The field work for both parts includes practical problems in forest management.

1 class hour and 1 4-hour laboratory a week. Credit, 3.

HYGIENE S-1. I. (For Freshmen)

Lectures on personal hygiene, including the physiological basis for sound health habits, the importance of the systematic planning of a student's daily program in order to provide the proper amounts of time for study, with suitable periods of sleep, relaxation, recreation, and sports; posture, appropriate types of exercises, proper nutrition, social adjustment, the necessity for frequent medical, optical, and dental advice; sanitation and group health requirements.

1 class hour a week. Credit, 1.

THE DEPARTMENT.

PRACTICAL SCIENCE S-7 and S-8. I. II.

This is a course in applied sciences, chiefly in the fields of chemistry and physics, as they are tools serving the needs of the food and dairy industries. In general, the course is designed to give an introduction to scientific thought and phenomena by means of lectures, textbook study and classroom demonstrations. The emphasis is entirely built around the practical problems in the student's field of work.

2 class hours and 1 2-hour laboratory period a week. Credit, 3

ASSISTANT PROFESSOR EVERSON.

PUBLIC SPEAKING S-1 and S-2. I. II.

The aim of the course is to give the student confidence in himself while speaking before groups, and to have him acquire some knowledge of, and practice in, the more practical types of public speaking.

1 class hour a week. Credit, 1.

ASSISTANT PROFESSOR NIEDECK, MR. ZAITZ.

VETERINARY SCIENCE S-1. (Animal Sanitary Science) I.

Sections for Animal Husbandry, Dairy Manufactures, and Poultry Husbandry Major students. Conservation of the health of animals is the keystone of successful animal husbandry. This course acquaints students with the essentials upon which the health of animals depends. In order that students may later guard the animals in their charge, attention is given to conditions favoring communicable and non-communicable diseases, and to prophylactic measures.

3 class hours a week. Credit, 3.

PROFESSOR LENTZ.

VETERINARY SCIENCE S-2. (Applied Animal Sanitary Science) II.

A continuation of S-1. The Animal Husbandry section will study the more common diseases of cattle, horses, sheep, and swine, and the Poultry Husbandry section will study poultry diseases. Causes; development; emergency; control; eradication; and prophylactic measures will be emphasized.

3 class hours a week. Credit, 3.

PROFESSOR LENTZ.

PHYSICAL EDUCATION FOR WOMEN

Professor Totman

This program aims at an all-round development of the student. It gives the student activity adapted to her needs; assists in overcoming remediable physical defects and bad health habits; it encourages good health standards, helps her build up skill in sports and games and swimming and leaves her with possibilities for spending leisure time wisely.

Required Courses

Physical Education S-1. I.

Outdoor season—field hockey, archery, tennis, swimming, volleyball. Indoor season—badminton, special gymnastics, games, swimming, dancing.

3 class hours a week. Credit, 2.

The Department.

Physical Education S-2. II.

Indoor season—badminton, special gymnastics, swimming, volleyball, bowling, dancing. Outdoor season—archery, swimming, softball.

3 class hours a week. Credit, 2.

The Department.

Elective Courses

Physical Education S-3 and S-4. I. II. (For Seniors)

The senior program is arranged to give the student an opportunity to express her desire for wholesome physical recreation, to further develop desirable character traits and social qualities and qualities of leadership.

3 class hours a week. Credit, 2.

The Department.

PHYSICAL EDUCATION FOR MEN

MR. KOSAKOWSKI, ASSISTANT PROFESSOR DERBY

REQUIRED COURSES

PHYSICAL EDUCATION S-1. I. (Recreation.—For Freshmen. Outdoor games.)

The following outdoor games are taken up: Softball, touch football, and swimming. Men may elect football or cross-country. The course aims to give every man the opportunity to develop sufficient control over his body to enable him to get pleasure from physical activities and to establish correct health habits. Not required of veterans.

2 laboratory hours a week for first half semester. Credit, 1.

THE DEPARTMENT.

PHYSICAL EDUCATION S-5. I. (Recreation.—For seniors. Outdoor games.)

Includes the games of volleyball, softball and swimming, with the object of giving the men exercise material for use in after school days. Men may elect football or cross-country. Not required of veterans.

2 laboratory hours a week for first half semester. Credit, 1.

THE DEPARTMENT.

ELECTIVE COURSES

PHYSICAL EDUCATION S-4. II. (Recreation.—For freshmen and seniors.) (Basketball and Indoor Track.) January-March.

Students electing this course must be regular members of the basketball, or indoor track squads and report regularly for practice with those squads.

Credit, 1.

THE DEPARTMENT.

PHYSICAL EDUCATION S-6. II. (Recreation.—For seniors.)

The senior class is divided into three or four major groups according to the number of students electing the spring physical education program. An intramural softball league schedule is played and an indoor and outdoor track meet run off. The group winning the highest average in all three events will have its name engraved on the Stockbridge School spring athletic trophy.

Credit, 1.

THE DEPARTMENT.

SHORT COURSES AT THE UNIVERSITY OF MASSACHUSETTS

Short courses are based on the idea that the motive which inspires study is the most significant factor in study itself, and that this motive rises when the student himself realizes he faces a problem that calls for a solution. Therefore there is no age limit. Enrolled in short courses are the young and the old, the experienced and the inexperienced, the theoretical and the practical. In this grouping there is a value, since students learn from each other as well as from the instructors. Practically all Short Course students intend to make a direct application of the knowledge given. Hence the aim of Short Course work is to offer the largest amount of information and training in agricultural and horticultural lines in the shortest possible time. During the past twenty-five years Short Courses have served thousands of students in this Commonwealth, and the demand for these courses since the war has increased greatly due to both veteran and non-veteran demand.

DIRECTORY OF INFORMATION

A. The University

Those desiring University catalogs and other pamphlets giving full information relative to entrance requirements, courses of study, expenses, opportunities for student labor, and so forth, and those with questions regarding admission to the university, either to the freshman class or to advanced standing should address William L. Machmer, Dean of the University, Amherst, Mass.

B. The Graduate School

Questions relating to courses offered leading to the degrees of Master of Science and Doctor of Philosophy, admission and work required, should be addressed to Fred J. Sievers, Director of the Graduate School, Amherst, Mass.

C. Short Courses

For information concerning the Short Course Units, the Stockbridge School of Agriculture, write or apply to Roland H. Verbeck, Director of Short Courses, Amherst, Mass.

D. Correspondence Courses

Correspondence courses are offered in Apple Growing; Beekeeping for Amateurs; Commercial Floriculture; Commercial Vegetable Growing; Farm Management; Home Flower Gardening; Nursery Culture; Poultry Husbandry. For detailed information write to Professor Alden P. Tuttle, French Hall, University of Massachusetts, Amherst, Mass.

ORM I

APPLICATION FOR ENROLMENT IN THE STOCKBRIDGE SCHOOL OF AGRICULTURE

ame .... Date ....

ity or
own .... Street .... State ....

resent Occupation .... Age ....

chool or College Attended:

ame of School .... Number of Years in High School ....

lace .... Are you a Veteran? ....

Indicate by a check mark the course in which you desire to register. Do not check more than one.

1. Animal Husbandry (Dairy Farming)
2. Dairy Manufactures (Milk Plant Operation)
3. Poultry Husbandry
4. Arboriculture
5. Commercial Vegetable Growing
6. Fine Turf Maintenance
7. Floriculture
8. Food Management (For Hotel and Restaurant Trade)
9. Forestry
10. Fruit Growing
11. Ornamental Horticulture (Landscape Gardening)

eferences.—I am personally acquainted with the above applicant, and know .... to be of good moral character, industrious, studious, and physically capable. Not required of veterans.

. Name .... Position ....

Address ....

. Name .... Position ....

Address ....

(Two references are required, and should not be members of your own family. Your minister and your teacher, or a former employer, are desirable. These persons should sign the application themselves.)

Mail this blank to Roland H. Verbeck, *Director of Short Courses*
University of Massachusetts, Amherst, Mass.

Important.—Be sure to file citizenship certificate if State tuition rate is claimed. Not required of veterans.

FORM II

CERTIFICATE OF CITIZENSHIP

The University of Massachusetts charges a tuition fee of $200 a semester to students who are not residents of Massachusetts. In order to satisfy the university authorities that an applicant is entitled to state tuition of $50 a semester, they require a statement signed by the clerk of the city or town in which the applicant resides, certifying to the fact that the parent or guardian of the applicant is a legal resident of said city or town. Where the guardian is certifying to this statement, it will be necessary for him to furnish copies of his appointment by the court. Such a statement may be made on the form below. If this is not presented when the student registers, the Treasurer has no option but to collect tuition on the above basis. When requesting the City Clerk to sign this certificate, an applicant for admission to the university should give the name and address of the parent or legal guardian unless he himself is of legal age.

This is to certify that I am the father .... mother .... legal guardian ....

of ....
Student's Name

Signed ....

This is to certify that on the date specified below (Insert name of parent or guardian)

.... is a legal resident of ....
Parent's Name

...., Massachusetts.
Town or City

Signed ....
Town or City Clerk

Date ....
Seal

Mail this blank to Roland H. Verbeck, *Director of Short Courses*
University of Massachusetts, Amherst, Mass.

This certificate must be filed with application blank if lower tuition rate for citizens of Massachusetts is to be secured. Not required of veterans.

GRADUATES — 1948

*John Silvio Adamo	Plymouth, Massachusetts
*Harry Lawrence Adriance	Pelham, Massachusetts
*Joseph Francis Ahearn	Belmont, Massachusetts
*James Charles Allen	North Andover, Massachusetts
Robert Lincoln Anderson	Roslindale, Massachusetts
Richard Pemberton Anthony	Boston, Massachusetts
John Armstrong Arnold	Lunenburg, Massachusetts
*Ronald Leonard Atkinson, Jr.	Springfield, Massachusetts
Pauline Ann Baker	Belchertown, Massachusetts
*James Barbas	Woburn, Massachusetts
*Russell Bernie Bass	Northampton, Massachusetts
*Gerard William Beaulieu	Worcester, Massachusetts
*Richard Drew Belden	North Hatfield, Massachusetts
*Louis William Benotti	Mendon, Massachusetts
*William Edwin Benson	Lynn, Massachusetts
*Carl Everett Bergstrom	Clinton, Massachusetts
*Robert Arthur Best	North Dartmouth, Massachusetts
*Kenton Holmes Billings	North Amherst, Massachusetts
*Robert Booth Bishop	Palmer, Massachusetts
Harold Everett Black, Jr.	Spencer, Massachusetts
*Donald Edward Bower	Arlington, Massachusetts
*Donald Loner Bowles	Middleboro, Massachusetts
*Chester Leo Boyle, Jr.	East Weymouth, Massachusetts
*Fred Garland Bragg	Shelburne Falls, Massachusetts
*Arthur Franklin Brown	Danvers, Massachusetts
*William Gardner Burford	Palmer, Massachusetts
Roger Willis Burnett	Conway, Massachusetts
*Robert Carl Carlson	Worcester, Massachusetts
*Ronald Irvin Carlson	West Brookfield, Massachusetts
*James Manard Carter	Hyde Park, Massachusetts
*Lawrence Edward Chambers	Needham, Massachusetts
*Correll Cowles Chapin	Sheffield, Massachusetts
*Theodore Chase	Sheffield, Massachusetts
*Walter Lathrop Childs	Manomet, Massachusetts
*Donald Bruce Chisholm	Stoughton, Massachusetts
*George Clark, Jr.	Tolland, Massachusetts
*John Lewis Clark	Tolland, Massachusetts
*Paul Pasquale Colella	Readville, Massachusetts
*William Patrick Comaskey	Lancester, Massachusetts
*John Joseph Coty	Pittsfield, Massachusetts
*Albert Louis Cover	Boston, Massachusetts
*Joseph Edward Craffey	Dorchester, Massachusetts
*Francis Richard Crane	Leominster, Massachusetts
*William John Crawford, Jr.	Whitinsville, Massachusetts
*Richard Hugins Crittendon	Otis, Massachusetts
*William Henry Crompton	New Bedford, Massachusetts
*Robert William Curley	Hingham, Massachusetts
William Earle Cushman	Brockton, Massachusetts
*Edmund Joseph Czelusniak	Easthampton, Massachusetts
Jacqueline Day	East Pepperell, Massachusetts
Philip Wesley Delano, Jr.	Duxbury, Massachusetts
*Francis Edward Desjarlais	Willimansett, Massachusetts
*Edward James Desmond	Amherst, Massachusetts
*Mario Di Carlo	Newton Centre, Massachusetts
Fay Aileen Dickson	Barre, Massachusetts
*Philip Earle Dole	Cambridge, Massachusetts
*Urban Thomas Donovan	Waltham, Massachusetts
*Louis Durant, Jr.	Attleboro, Massachusetts
*Judson Frederick Edwards	Worcester, Massachusetts
*David William Eldredge	Wareham, Massachusetts
*John James Elliot, Jr.	Readville, Massachusetts
*Richard Albert Ellsworth, Jr.	Chester, Massachusetts
Philip Ernest Ernst	Jamaica Plain, Massachusetts
*George Carlton Ezekiel	Feeding Hills, Massachusetts
*David Francis Ferzoco	Readville, Massachusetts
*Anthony Thomas Fiorini	Pittsfield, Massachusetts
*William Wallace Flint, Jr.	Winchendon, Massachusetts
*Richard Thomas Flood	Brookline, Massachusetts
*John Joseph Flynn	Holyoke, Massachusetts
*Wellington Armstrong French	Stockbridge, Massachusetts
*Robert Kempton Fuller	Haverhill, Massachusetts
*Leo Gilbert Gagnier	Holyoke, Massachusetts
*Calvin Douglas Glazier	Leverett, Massachusetts
*James Lewis Glazier	Leverett, Massachusetts
*Irving Gold	East Longmeadow, Massachusetts
David Marshal Grandy	Hudson, Massachusetts
*Richard William Greenleaf	Saugus, Massachusetts
*Fred Fleming Griffin	Bloomfield, Connecticut
Eva Flora Grimes	Oakham, Massachusetts
*Norman Enselmo Guidaboni	North Plymouth, Massachusetts
*Charles William Hall	Still River, Massachusetts
*Robert Cummings Heustis	Belmont, Massachusetts
*Joseph Francis Hogan	Salem, Massachusetts
*Robert Thomas Hogg	Melrose, Massachusetts
*William Patrick Holdman, Jr.	Reading, Massachusetts
*Everett Grenville Jewett	Ipswich, Massachusetts

Richard Francis Johnson	Reading, Massachusetts
*Ralph Arthur Knaust	Clinton, Massachusetts
*Frederick Gilbert Knowles, Jr.	Pelham, Massachusetts
*Roger Wallace Lawrence	Winchendon, Massachusetts
*Kenneth Dedrick LeBeau	Wellesley Hills, Massachusetts
*Reuben Ely Lebeaux	Shrewsbury, Massachusetts
David Warren Leonard	Abington, Massachusetts
*Aarne Mattias Leppaniemi	Fitchburg, Massachusetts
Charles William Lindquist, Jr.	Melrose, Massachusetts
*George Walker Lord, Jr.	Holliston, Massachusetts
*John Philip Lukens	Belmont, Massachusetts
*Mark Dunnells Lurvey	Newton Lower Falls, Massachusetts
*Richard Francis Markey	Wellesley, Massachusetts
*Henry Arthur Mathieu	Southbridge, Massachusetts
*Silvio Carl Merlini	North Adams, Massachusetts
*Malcolm Clegg Midgley, Jr.	Worcester, Massachusetts
*Woodrow Henry Miller	Springfield, Massachusetts
*DeWitt Mitchell	Medford, Massachusetts
*George James Moore, Jr.	Worcester, Massachusetts
*Paul Joseph Murphy	Oakham, Massachusetts
*Robert James MacDonough	Worcester, Massachusetts
*William Frederick MacGray	Needham, Massachusetts
Martin Stephen McManus	Worcester, Massachusetts
*Malcolm McLeod Nicholson	Wareham, Massachusetts
*Eino Evert Niinimaki	Fitchburg, Massachusetts
*Richard Elmer Nilsson	Avon, Massachusetts
*Harry Simeon Norwood	Charlemont, Massachusetts
*Paul Joseph O'Leary	Worcester, Massachusetts
*Robert Dwight Pease	Templeton, Massachusetts
*John Rogers Perkins	Middleboro, Massachusetts
*William Carlton Poole	Holbrook, Massachusetts
*James Joseph Postizzi	Boston, Massachusetts
*Herman Sawyer Pratt, Jr.	East Weymouth, Massachusetts
*William Alfred Rae, Jr.	Arlington, Massachusetts
Charles Dondale Reid	Wayland, Massachusetts
Betsy Amy Richardson	West Brookfield, Massachusetts
Lois Marie Rinehart	Weston, Massachusetts
*George Malcolm Roaf	Melrose, Massachusetts
*Thomas Grant Rohan	Holyoke, Massachusetts
*George Douglas Ross	Bedford, Massachusetts
*John James Ross, Jr.	West Cummington, Massachusetts
*John Charles Rouleau	Lancaster, Massachusetts
*Sahag Sam Sarkisian	Lowell, Massachusetts
*Robert Shepherd Schlicke	Brookline, Massachusetts
Roger Bradford Scott	Ashfield, Massachusetts
*Roy Frederick Seely	Northampton, Massachusetts
Donald Osborne Shanley	Attleboro, Massachusetts
*Michael Assad Simon	Pittsfield, Massachusetts
*Charles David Sjolander	Worcester, Massachusetts
*Carlyle Alton Smith	Springfield, Massachusetts
*Earle Hunter Smith	North Grafton, Massachusetts
*James Martin Smith	Worcester, Massachusetts
Milton Henry Smith	Haverhill, Massachusetts
*Walter Alfred Smith	North Quincy, Massachusetts
*William Dean Smith	Lexington, Massachusetts
Donald Augustus Snow, Jr.	Haverhill, Massachusetts
*Albert Everett Spencer, Jr.	Weymouth, Massachusetts
Kenneth Joseph Steenburn	Charlton Depot, Massachusetts
*John Lawrence Sullivan	Holyoke, Massachusetts
*Joseph Daniel Sullivan	Belmont, Massachusetts
*Wayne Albert Suriner	Chester, Massachusetts
*Michael Joseph Thomas	Worcester, Massachusetts
*Roger Bradstreet Thompson	Beverly, Massachusetts
*Robert Charles Thurston	Natick, Massachusetts
*Roy Earle Tripp	New Bedford, Massachusetts
*Richard Delmor Tryon	Monterey, Massachusetts
*Ray Danforth Upham, Jr.	Florence, Massachusetts
*Joseph Arthur Vaughan	Lynn, Massachusetts
*Joseph Aloysius Walker, Jr.	North Dartmouth, Massachusetts
*Edward Watson	Cohasset, Massachusetts
*Bernard John Welch	Rutland, Massachusetts
*Richard James White	Lynn, Massachusetts
Ralph Edgar Wilbur	Oakham, Massachusetts
*Paul Robert Wilson	Hyde Park, Massachusetts

AS OF THE CLASS OF 1947

*Edwin Augustine Springer	East Walpole, Massachusetts

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*Veterans—World War II

CLASS OF 1949

	Home Address	*Amherst Address*
Ackerman, Anthony John	Ludlow	Commonwealth Circle T-7
Ainsworth, Henry Dewey, Jr.	Grafton	34 Kellogg Avenue
Aldrich-Ames, Patricia Ruth	Melrose	Lewis Hall—Room 406
Allen, Ellis Nye	Medfield	8 Sunset Avenue
Aptt, George William, Jr.	Framingham Center	Commonwealth Circle T-10
Armstrong, Theodore Rogers	Attleboro	Commonwealth Circle R-2

	Home Address	*Amherst Address*
Austin, John Raymond	Springfield	449 North Pleasant Street
Babcock, Ernest Garcelon, Jr.	Reading	Commonwealth Circle T-23
Bacon, David Hayden	Norwood	R. F. D. No. 1
Bak, John Joseph	Hadley	R. F. D. No. 3
Ball, Allen Fiego	Watertown	Commonwealth Circle S-5
Barnhill, Joseph Washington	Worcester	Commonwealth Circle S-6
Barter, Bruce Manter	Berlin	461 North Pleasant Street
Bartlett, Phillip Warren	Berlin	34 Kellogg Avenue
Batchelder, Donald Robert	Weymouth	12 Colony Court
Bates, Herbert Dutton	Carlisle	Commonwealth Circle S-7
Beatty, Joseph Edward, Jr.	Huntington	Commonwealth Circle S-10
Bigelow, Harold Fostene, Jr.	Northfield	15 Hallock Street
Blackie, Harold McClellan, Jr.	Chelmsford	449 North Pleasant Street
Blackman, Franklin Hudson, Jr.	Worcester	Commonwealth Circle S-14
Boissoneault, Harry Marion	Southbridge	Commonwealth Circle S-15
Bowers, William Arthur, Jr.	Lynn	Commonwealth Circle P-13
Boyd, William John	Whitinsville	Greenough Hall
Breed, Ralph Carter	Lancaster	Commonwealth Circle S-15
Broderick, Richard Thomas	Boston	Federal Circle G-6
Brooks, Vernon Lincoln	Middleboro	Commonwealth Circle S-17
Brown, George Robert	Worcester	44 Mt. Pleasant
Buczynski, Stanley Joseph	Sunderland	Sunderland
Burley, Robert Stanley	Fitchburg	Commonwealth Circle S-18
Burns, John Leonard	Wrentham	Commonwealth Circle S-18
Bus, Stanley Belding	Chicopee	Commonwealth Circle Q-2
Cadiero, George Alfred	Bedford	Commonwealth Circle S-22
Calnan, John William, Jr.	Medway	382 North Pleasant Street
Camann, Herbert Alvin	Athol	Commonwealth Circle S-22
Campbell, Robert Hugh, Jr.	Malden	Commonwealth Circle S-24
Campbell, Walter Douglas, Jr.	Middleboro	401 North Pleasant Street
Carter, Richard Francis	Swampscott	Commonwealth Circle S-24
Cash, Clarence Daniel	Greenfield	Greenfield
Chace, Walter Freeborn	Swansea	Commonwealth Circle S-24
Chadbourne, Frank Roderick	Braintree	Commonwealth Circle S-25
Chase, Allan Seamans	Ashburnham	Commonwealth Circle S-25
Chretien, James Frank	Roxbury	Commonwealth Circle S-26
Clark, Bay Herbert	Stoneham	Commonwealth Circle S-26
Cogger, Thomas Stanley	Melrose	Commonwealth Circle S-27
Coleman, Harold Elliott	Gloucester	Commonwealth Circle S-27
Conley, Edward Francis	Cambridge	Commonwealth Circle S-28
Cotton, Edward Howe	Florence	12 Colony Court
Crafts, Nelson Ernest	Northampton	Commonwealth Circle S-29
Crichton, Alexander Leggett	Wollaston	Commonwealth Circle T-11
Crowell, William Hume	East Dennis	Greenough Hall—Room 321
Cunningham, Robert Russell	Groton	Commonwealth Circle S-29
Darling, James Arthur	Fairhaven	Commonwealth Circle S-31
Davidson, Gordon Hoyt	Worcester	280 Main Street
Davis, Henry Fulton, III	Dedham	8 Sunset Avenue
Degen, Robert Martin	Adams	Commonwealth Circle R-6
Delorey, William Henry	East Weymouth	Commonwealth Circle S-31
Deslauriers, John Joseph	Ware	8 Sunset Avenue
DiRico, Joseph	Marlboro	Pelham Road
Doggett, Martha Ellis	Watertown	Lewis Hall—Room 303
Dowley, Richard Bryant	Longmeadow	Commonwealth Circle S-28
Drake, Charles Edward	Amherst	665 Main Street
Drumm, Everett Floyd	Great Barrington	Greenough Hall—Room 303
Eggleston, Joseph Lincoln	Danvers	Commonwealth Circle S-35
Egner, Richard Andrew	Foxboro	Commonwealth Circle S-35
Ellis, Donald Richardson	Winchester	Greenough Hall—Room 419
Emerson, James Pitts	Chelmsford	49 Fearing Street
Erikson, Boleslav	Hingham	Trailer Camp
Fecteau, Harrison Bartlett	South Hadley	Greenough Hall—Room 419
Fellows, Jerome Willis	Newton	Commonwealth Circle R-7
Fiske, John Harry	Pittsfield	Commonwealth Circle R-18
Flood, Harry Arthur	Hudson	34 Kellogg Avenue
Fontanella, Edward	Medway	Commonwealth Circle R-5
Frankenberg, Charles Peter	Concord	12 Colony Court
Frattasio, Frank Leo	Quincy	69 Meadow Street
Frazier, John Henry	Winchendon	367 North Pleasant Street
Frederick, Paul Joseph	Winthrop	Commonwealth Circle R-22
Frost, Charles Addison	Concord	Commonwealth Circle R-31
Galanis, Alexander	Marlboro	Commonwealth Circle R-32
Galusha, George Newell, Jr.	Granby	Commonwealth Circle S-30
Geneva, James Carmen	West Boylston	Commonwealth Circle P-1
Giacobbe, Charles Carmine	Revere	Commonwealth Circle P-2
Giammarco, James, Jr.	Canton	Commonwealth Circle P-2
Gopen, Kenneth Harvey	Everett	353 Main Street
Gotlib, Aaron Irving	New Bedford	Commonwealth Circle Q-1
Graham, Daniel Joseph	Arlington	Commonwealth Circle P-3
Graham, Lawrence Edward	Arlington	Commonwealth Circle P-3
Grandy, Fred Richard	Hudson	Commonwealth Circle T-18
Gregory, Paul Anthony	Worcester	Commonwealth Circle P-4
Griffin, Patrick Joseph	Winchester	Commonwealth Circle Q-3
Grinnell, Francis Norcross	North Dartmouth	359 River Rd., North Hadley
Guidetti, Trento Victor	Springfield	Springfield
Handy, William John	Springfield	12 Dickinson Street
Hannum, Richard Squier	Ludlow	Commonwealth Circle Q-4

	Home Address	*Amherst Address*
Harbilas, John Nicholas	Holyoke	87 McClellan Street
Harwood, Edward Lincoln	Belmont	Greenough Hall—Room 401
Hawes, Donald Morrison	North Sudbury	Commonwealth Circle S-25
Hayes, Edwin Stevens	Milton, New Hampshire	R. F. D. No. 1 Easthampton
Hill, Elmer Raymond	Hubbardston	Commonwealth Circle R-29
Holmes, William Schofield	St. Bruno, Quebec, Canada	Commonwealth Circle S-14
Homans, Robert Albert	Springfield	Commonwealth Circle Q-5
Howarth, Alice Louise	Upton	Lewis Hall—Room 303
Hubbard, Hugh Franklin	Whitman	Commonwealth Circle R-31
Hussey, Merrill Kinsley	Lynn	Commonwealth Circle S-20
Hussey, Robert Franklin	Beverly	367 North Pleasant Street
Hutchins, Herbert Colby, Jr.	Amherst	West Street
Jennings, Paul James	Brighton	Greenough Hall—Room 401
Jermain, Warren Wentworth	Clinton	Commonwealth Circle P-1
Jernberg, Ernest Earhard	Worcester	Commonwealth Circle Q-13
Jernberg, Marshall Robert	Worcester	Commonwealth Circle Q-6
Johnson, Albert Rudolph	Andover	798 North Pleasant Street
Jones, George Everett, Jr.	Belmont	Greenough Hall—Room 402
Keefe, Thomas Albert	Revere	Greenough Hall—Room 406
Kennedy, William Howard	Amherst	12 Walnut Street
Kesner, Peter Harriman	Haverhill	375 North Pleasant Street
Ketchen, Andrew Gilmore, Jr.	Wayland	Leverett
Kimball, Roy Wallace, Jr.	Haverhill	Commonwealth Circle Q-7
King, Loren Marsh, Jr.	Hudson	Greenough Hall—Room 406
Kirk, Kenneth Bashford	East Walpole	Commonwealth Circle Q-8
Kupelian, Jacob	Northbridge	367 North Pleasant Street
Ladd, Norman Bliss	North Amherst	25 Pine Street
Lafley, Lyndon Walter	Enosburg Falls, Vt.	Greenough Hall—Room 408
Laschky, Carl Henry	Pittsfield	Commonwealth Circle Q-9
Lavanaway, Alvin Samuel	Wrentham	449 North Pleasant Street
Leskinen, Allan Oliver	Gardner	12 Colony Court
Lewis, Sheldon	Brighton	Commonwealth Circle Q-1
Lidwin, Fred Walter	Chicopee Falls	367 North Pleasant Street
Lowe, Charles Walter	Leominster	Greenough Hall—Room 417
Lyman, Francis Brainard, Jr.	Amherst	South East Street
Lyons, Thomas Peter	Woburn	Greenough Hall—Room 413
Mague, Herbert Arthur	Littleton	Commonwealth Circle T-3
Makrides, Christopher	Somerville	Greenough Hall—Room 413
Margosis, George Christ	Holyoke	Holyoke
Marshall, David Walter	Orange	Greenough Hall—Room 320
Marshall, Ronald Francis	Pittsfield	Commonwealth Circle Q-11
Martin, Donald Oliver	East Longmeadow	Commonwealth Circle P-13
Matthews, William Van	West Roxbury	Commonwealth Circle Q-13
Mercier, Robert Joseph	Springfield	Commonwealth Circle P-15
Merrill, Frank Lawrence, Jr.	Swansea	Commonwealth Circle Q-14
Miano, Frank Redmond	Holyoke	Holyoke
Miller, Carolyn May	Northfield	Lewis Hall—Room 406
Millett, Frederic Lincoln	Whitman	Commonwealth Circle T-6
Millican, Arthur Renwick	Lexington	Commonwealth Circle P-4
Mitchell, Donald Lee	Lynn	449 North Pleasant Street
Moffatt, John Douglas	Holyoke	Holyoke
Moore, William Irving	Easthampton	Easthampton
Morocco, Raymond James	North Adams	Greenough Hall—Room 402
Morrison, Edward Thurbur, Jr.	Billerica	Greenough Hall—Room 320
Moses, Graydon Franklin	Attleboro	Greenough Hall—Room 402
McCray, Donald Calvin	Monson	Monson
McGonagle, Francis Daniel	Malden	Commonwealth Circle Q-13
MacKay, Donald, Jr.	East Hartford, Conn.	42 Cottage Street
MacKinnon, Harry Lorne, Jr.	Melrose	Commonwealth Circle Q-12
Newhall, William Stewart	Newburyport	Greenough Hall—Room 406
Nichols, Gilbert White	Grafton	41 Cottage Street
Nilsson, Emil Oscar	North Chelmsford	Greenough Hall—Room 408
Nix, Alvin Earl	Framingham	Greenough Hall—Room 413
Nuttelman, Justin Yvon	Florence	Florence
Oliveira, Victor	New Bedford	12 Colony Court
O'Neil, James Conrad	Fitchburg	Greenough Hall Room 417
Ovian, Kayem	Whitinsville	Commonwealth Circle P-15
Page, Geoffrey Edward	North Amherst	175 State Street
Page, John Alfred	Amherst	351 Main Street
Parsons, Chester Charles, Jr.	Walpole	Commonwealth Circle Q-3
Parsons, Ernest John	Wollaston	372 Lincoln Avenue
Patterson, Francis Alfred, Jr.	Arlington	Commonwealth Circle Q-5
Pecevich, Stanley Alexander	Shrewsbury	73 Fearing Street
Peluso, Otis Henry Luca	Lynn	Commonwealth Circle Q-6
Pietraszka, Vincent, Jr.	Groveland	42 Cottage Street
Plourde, Arthur Ernest	Chicopee Falls	Greenough Hall—Room 320
Prentiss, Arthur Palmer	Danvers	8 Sunset Avenue
Rawson, Chester Lloyd	Oxford	Commonwealth Circle Q-7
Reed, Arnold Ernest	Cambridge	Commonwealth Circle Q-8
Reed, James Winter	Sudbury	42 Cottage Street
Reinhold, Roy William, Jr.	Pittsfield	Commonwealth Circle Q-11
Roberge, Leo Hubert	Palmer	Commonwealth Circle Q-14
Roehrich, Robert Gustave	Bridgeport, Conn.	Commonwealth Circle Q-15
Rogers, Robert John	Dedham	Commonwealth Circle Q-15
Roney, David Peerman, Jr.	Somerville	107 East Pleasant Street
Royle, Richard Sheldon	West Springfield	West Springfield

	Home Address	*Amherst Address*
St. Thomas, Oscar Omer, Jr.	Worcester	12 Colony Court
Salvie, Raymond Augustus	Seekonk	401 North Pleasant Street
Schwartz, Sumner Clark	Agawam	12 Colony Court
Scotland, Gordon Lionell, Jr.	Ashland	38 Lessey Street
Scott, William Alexander	Canton	15 McClellan Street
Senecal, Peter Ovila, Jr.	Southville	Mount Pleasant Inn
Shelnut, Richard Edward	Northampton	15 McClellan Street
Sherman, Winston Knight	Middleboro	15 McClellan Street
Shorey, Malcolm Ellsworth	Milton	Commonwealth Circle Q-9
Shufelt, Frank Lewis	Walpole	Butterfield House—Room 406
Silvar, Daniel Richard	Marlboro	449 North Pleasant Street
Silvi, Louis Emilio	Walpole	Commonwealth Circle S-13
Simmons, Charles George	Fairhaven	Greenough Hall—Room 306
Simoneau, Bernard Joseph	Auburn	24 Kellogg Avenue
Simpson, Sidney James, Jr.	South Hamilton	111 Meadow Street, N. A.
Smarsh, David	Middleboro	401 North Pleasant Street
Smith, Clarence Bailey	New Braintree	Commonwealth Circle Q-6
Smith, Clayton Dana	New Bedford	382 North Pleasant Street
Smith, Lindsey Edmund, Jr.	West Brookfield	382 North Pleasant Street
Sodano, Remo Guido	Somerville	461 North Pleasant Street
Souza, Ralph Marshall, Jr.	Fairhaven	461 North Pleasant Street
Squires, Jason William	Greenfield	Greenfield
Stasinos, William	Holyoke	87 McClellan Street
Stewart, Frank	North Andover	375 North Pleasant Street
Stiles, Arthur Farnham, Jr.	Reading	Greenough Hall—Room 304
Stone, John Henry	Orange	8 Clifton Avenue
Stranger, Walter Verne	Georgetown	8 Clifton Avenue
Sullivan, John Francis	North Andover	375 North Pleasant Street
Sullivan, Paul	Arlington	616 Main Street
Swan, William Nelson	Worcester	449 North Pleasant Street
Thibault, John Henry	Lake Pleasant	Lake Pleasant
Thompson, Jack Sidney	Orange	616 Main Street
Tiffany, Dwight Loomis	Easthampton	Easthampton
Toelken, Donald Warren	Longmeadow	111 Meadow Street, N. A.
Totman, William Hayward	North Easton	Commonwealth Circle Q-2
Tucker, Robert Charles	Hanover	616 Main Street
Tuttle, Miner Worthington, Jr.	Amherst	Fort Hill Farms
Utley, Samuel Tracy	Hinsdale	34 Kellogg Avenue
Verrill, Ernest Cole	Concord	13 Colony Court
Vlach, Edwin Vincent	Turners Falls	Turners Falls
Wark, Albert Thomas	Dorchester	Commonwealth Circle S-13
Wasielewski, Edward Anthony	Webster	367 North Pleasant Street
Waters, Joseph Vincent	Peabody	42 Cottage Street
Wedrychowski, Chester Peter	West Springfield	401 North Pleasant Street
Wells, Harry Wardman	Longmeadow	8 Sunset Avenue
Wheeler, Gilbert Edward	Wrentham	449 North Pleasant Street
Whelpley, Donald Howe	Weston	57 Woodside Avenue
Whisenant, Frank Joseph	State Line	Greenough Hall—Room 303
Wilcox, Daniel Riley	Dracut	57 Woodside Avenue
Willey, Donald Arthur	Chester	925 North Pleasant Street
Williams, Earl Richard	Springfield	57 Woodside Avenue
Witaszek, Joseph Henry	West Warren	375 North Pleasant Street
Wood, George Edward	Middleboro	401 North Pleasant Street
Woodcome, Paul Joseph	Gardner	401 North Pleasant Street
Woodruff, Willis Clinton	Lunenburg	367 North Pleasant Street
Zack, Mathias Charles	Deep River, Conn.	449 North Pleasant Street

"God grants liberty to those who love it, who are always ready to guard and defend it."

"The cultivation of the earth is the most important labor of man. Unstable is the future of the country which has lost its taste for agriculture. If there is one lesson of history that is unmistakable, it is that national strength lies very near the soil."

—DANIEL WEBSTER.

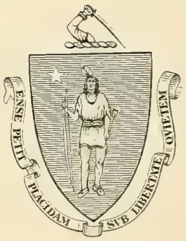
Born in Salisbury, New Hampshire, 1782-1852. His father a farmer of Scottish stock. Graduated from Dartmouth College in 1801. In 1820 he aided greatly in revising the constitution of Massachusetts. Became one of the greatest orators in the nation. Lived and died in Marshfield, Massachusetts.

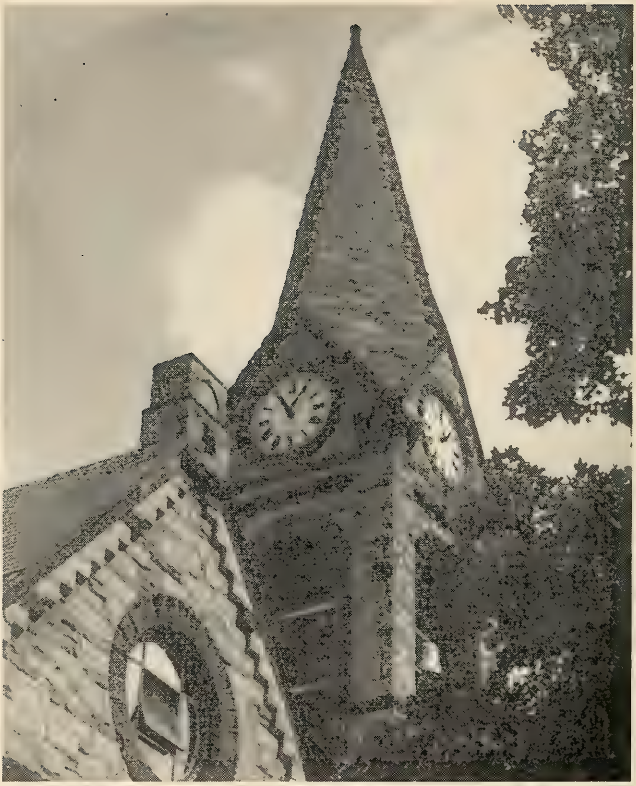
Bulletin

UNIVERSITY OF MASSACHUSETTS

COMMENCEMENT

1948


ENSE PETIT PLACIDAM SUB LIBERTATE QUIETEM



There is a certain valley

PRESIDENT'S LETTER

To Alumni and Friends of the University of Massachusetts:

I am glad to welcome you to the seventy-eighth Commencement at the University of Massachusetts.

In the year since we became a University, we have developed very rapidly. You will be interested in the evidence of that growth as it appears in buildings already under construction at several places on the campus to provide more dormitories and more classrooms and more laboratories. The teaching staff and the curriculum are growing, too, to meet the needs of a greatly increased number of students.

The further development of the University involves the enlargement and improvement of older departments as well as the addition of new ones. The future promises much as we prepare to meet the increasing demand of the people of Massachusetts for greatly expanded and strengthened facilities for public-supported higher education.

Sincerely,

Ralph A. Van Meter.

PROGRAM

Friday, June 4, 1948

8:00 P. M. Informal Class Reunions.

9:00 P. M. Sophomore Senior Hop.

Saturday, June 5, Alumni Day

10:00 A. M. Annual Meeting, Associate Alumni, Memorial Hall.

11:00 A. M. Semi-Annual Meeting, Board of Trustees, President's Office.

12:00 M. Alumni Luncheon and Speaking Program, Drill Hall.

2:30 P. M. Alumni Parade to Ball Game.

3:00 P. M. Varsity Baseball Game with Springfield College, Alumni Field.

Following Game—Half Hour Concert on Chime.

4:00 P. M. Alumnae Tea, Stockbridge House.

6:00 P. M. Fraternity and Class Reunions as arranged by organizations.

9:00 P. M. Roister Doister Play, "Joan of Lorraine".

Sunday, June 6, Baccalaureate Sunday

9:00 A. M. Academics and Varsity Club Breakfast Meetings, Draper Hall.

12:00 M. Fraternity and Class Reunions as arranged by organizations.

3:00 P. M. Baccalaureate Service, Bowker Auditorium.
Speaker to be announced.

5:00 P. M. Garden Party for Faculty, Alumni, Students, and Friends, Rhododendron Garden.

8:00 P. M. Concert on the College Chime.

8:00 P. M. Senior Class Night Exercises, Bowker Auditorium.
Followed by Alumni Reception to Seniors, Memorial Hall.

Monday, June 7, Class Day

9:45 A. M. Academic Procession from Memorial Hall.

10:00 A. M. Graduation Exercises.
Speaker to be announced.

ALUMNI REUNION PROGRAM

Saturday, June 5

10:00 A. M.	Annual Meeting of the Associate Alumni, Auditorium, Memorial Hall.
12:00 M.	Alumni Luncheon, Drill Hall.
2:30 P. M.	Alumni Parade, Memorial Hall to Alumni Field.
3:00 P. M.	Varsity Baseball Game—with Springfield College, Alumni Field. Following the game there will be a half-hour concert on the college chime.
4:00 P. M.	Alumnae Tea, Stockbridge House.
6:00 P. M.	Class and fraternity reunions and suppers as arranged by the various organizations.
9:00 P. M.	Roister Doister Play—"Joan of Lorraine", Bowker Auditorium.

CLASS REUNIONS

ALUMNI REGISTRATION HEADQUARTERS, MEMORIAL HALL

1888	60th Reunion—Herbert C. Bliss, 807 Broad Street, Providence, R. I.
1893	55th Reunion—John R. Perry, 700 Commonwealth Avenue, Newton Centre.
1894	Annual Reunion—Dr. S. Francis Howard, 58 Main Street, Northfield, Vt.
1898	50th Reunion—Willis S. Fisher, R.F.D. 1, Wakefield, R. I.
1903	45th Reunion—Gerald D. Jones, Cowles Farm, North Amherst.
1908	40th Reunion—Roland H. Verbeck, South College, University of Massachusetts.
1913	35th Reunion—James W. Dayton, South College, University of Massachusetts—and a local committee.
1918	25th and 30th Reunions combined! Headquarters, Paige Laboratory, O. C. Roberts, 24 Nutting Avenue, Amherst.
1923	25th Reunion—Dr. Luther B. Arrington, N. J. Agric. Exp. Station, New Brunswick, N. J.
1928	20th Reunion—Elizabeth Morey Kay, 50 Grand Street, Reading; Dean John F. Quinn, Rhode Island State College, Kingston, R. I.
1933	15th Reunion Benton P. Cummings, 18 South East Street, Amherst, in charge of local arrangements.
1938	10th Reunion—Herbert E. Brown, Time, Inc., 30 Rockefeller Center, New York 20, N. Y.
1943	5th Reunion—Robert A. Fitzpatrick, Stockbridge Hall, University of Massachusetts.
1945	3rd Reunion—Joseph C. Kunces, 12 Washburn Street, Middleboro.
1947	1st Reunion—Milton R. Bass, 29 Harrison Avenue, Northampton.

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FARM AND HOME DAYS

NIVERSITY OF MASSACHUSETTS JULY 19-20-21, 1948

Stockbridge Hall—Information Headquarters

niversity of
lassachusetts
Bulletin
mherst, Mass.

VOL. XL
NUMBER 5
JULY, 1948

PUBLISHED SIX TIMES A YEAR BY THE UNIVERSITY OF MASSACHUSETTS
ENTERED AT THE POST OFFICE, AMHERST, MASS., AS SECOND CLASS MATTER

General Information

Information Desk

An information desk will be located in Stockbridge Hall, where telephone messages and mail for visitors will be received from 9:00 a.m. to 8:00 p.m. Telephone number is Amherst 900.

Rooms

Rooms will be available in Thatcher and Lewis Halls at Information Desk after 4:00 p.m. on Monday, July 19. The price will be $1.50 per night. Linen will be furnished with the exception of towels. Reservations should be made in advance by writing to the Poultry Department, U. of M., Amherst.

Rooms are available in private homes where one may be assured of comfortable quarters and courteous treatment. The average price is $2 per night.

Hotel rooms in Amherst average $2.50 to $4 per night.

Meals

The University cafeteria will serve meals (G. I. style) during Farm and Home Days as follows:

Morning	7:00 to 7:30
Noon	11:30 to 12:45
Evening	5:30 to 6:30

The University Store, North College, will be open from 8:30 a.m. to 5:00 p.m.

Children's Nursery

Children's Nursery will be maintained at the Nursery School, rear of Stockbridge Hall, from 9:00 a.m. to 5:00 p.m. This will be available for pre-school children, age 2 to 5. There will be no charge.

Monday, July 19

Beekeeping

French Hall, Room 102
Frank R. Shaw, Assistant Professor of Beekeeping,
U. of M., Presiding

9:45 Introductory Remarks
Frank R. Shaw

10:00 How Bees Communicate
E. F. Phillips, Professor Emeritus of Beekeeping, Cornell University

11:00 What Is New in the Bee Breeding Program?
George Rea, Commercial Beekeeper, Reynoldsville, Pa.

12:15 p.m. Lunch

George Leukhardt, Greenfield, President of State
Beekeepers Association, Presiding

1:30 Beekeeping and Its Relationship to Insect Control in Massachusetts
Ellsworth H. Wheeler, Extension Entomologist, U. of M.

MONDAY--Continued

2:00 Beeswax—Its Uses and Processing
H. H. Root, President, A. I. Root Co., Medina, Ohio

3:00 How to Process Honey
E. F. Phillips
4:00 Business Meeting

Tuesday, July 20

Valley and Truck Crops

10:30 a.m. Irrigation Demonstration in Campus Pond Area
12:15 p.m. Lunch
1:15-3:45 Field Demonstrations at Brooks Farm

1. Observation of weed control experiments
2. Demonstration of weed control and cultivation equipment
3. Demonstration of insecticide and fungicide equipment

Bowker Auditorium

4:00 Massachusetts People and World News
William G. Avirett, Education Director,
New York Herald Tribune

Homemaking

Bowker Auditorium
Dr. Anne Wertz, Research Professor of Home Economics, U. of M., Presiding

10:30 a.m. Singing
Mrs. Ambrose T. Ryan, Holyoke, Leader
10:45 Good Lighting Pays (demonstration)
Mrs. Lillian E. Eddy, Home Lighting Specialist, General Electric Company, New York City
11:45 Lunch

Dr. Helen S. Mitchell, Dean of School of Home Economics, U. of M., Presiding

1:15 p.m. Singing
Mrs. Richard J. Nahlovsky, Springfield, Leader
1:30 Your Vote Does Count
Mrs. Robert L. Mannheim, President,
League of Women Voters, Amherst
2:30 World Friends Through Books
Miss Alice B. Cushman, Children's Librarian, Fitchburg
3:30 Social Hour
4:00 Massachusetts People and World News
William G. Avirett, Education Director,
New York Herald Tribune
8:00 Country Dance Festival—Athletic Field

Exhibits of Interest to All Homemakers—Rooms 113 and 114 Stockbridge Hall

TUESDAY--Continued

Dairy

South of Grinnell Arena

10:00 a.m. Field Demonstrations—Supervised by
Herbert Stapleton, Professor of Agricultural Engineering, U. of M.
Matthew L. Blaisdell, Superintendent of Farm, U. of M.
Ralph Donaldson, Extension Agronomist, U. of M.
A. A new flame weeder
B. 2-4, D weed killing plots
C. Silo unloader
D. Barn gutter cleaner
E. Vacuum blower for unloading silage
F. Barn hay drier
G. Silage wagon unloader
H. Pasture irrigation equipment

Campus Pond Area

12:00 Demonstration of Pasture Irrigation System
12:30 p.m. Lunch

Grinnell Arena

Roy E. Moser, Extension Economist in Farm Management, U. of M., Presiding

1:45 Make Money by Efficient Work Methods
Roger G. Murphy, Farm Management Department, Cornell University
2:45 Discussion
3:00 Managed Milking (demonstration)
Harry Hamilton, narrator, Glastonbury, Conn., a demonstrator and six cows
3:30 New Developments in Sanitizing Teat Cups
William S. Mueller, Research Professor in Dairying, U. of M.

Bowker Auditorium

4:00 Massachusetts People and World News
William G. Avirett, Education Director, New York Herald Tribune

Exhibits of Labor Saving Equipment on Display at Grinnell Arena You Are Invited to Inspect the College Barns—See the Herd and Equipment—Guides Will Be Present to Assist You

Goat

Goessmann Auditorium

11:00 a.m. Program not completed in time for printing. Full program to appear in New England Goat Breeders' News.
12:30 p.m. Lunch

Bowker Auditorium

4:00 Massachusetts People and World News
William G. Avirett, Education Director, New York Herald Tribune

Home Garden

Memorial Hall
Clark L. Thayer, Head of Floriculture Department, U. of M., Presiding

9:30 a.m. Discussion and Question Period
  Members of the University Staff
    Weed killers on the lawn and in the flower garden
    DDT, the bugs, the worms, and the birds
    Any other questions?

10:30 Flowering New England (Illustrated in Color)
  The Merrys, Needham, Mass.

12:15 p.m. Lunch

Donald E. Ross, Assistant Professor of Floriculture, U. of M., Presiding

2:00 How a Man Arranges Flowers for Use in the Home (Lecture and Demonstration)
  Allen W. Hixon, Commercial Florist, Worcester, Mass.

Bowker Auditorium

4:00 Massachusetts People and World News
  William G. Avirett, Education Director, New York Herald Tribune

Display of Table Settings and Appropriate Flower Arrangements
Loggia of Memorial Hall

Small Fruit

Cold Storage Plant
Arthur P. French, Acting Head, Department of Pomology, U. of M., Presiding

10:00 a.m. Exhibits
  Insects and diseases of small fruits—tools and implements useful in the small fruit plantation—different types of packages

11:00 New Developments with Strawberries and Raspberries
  George L. Slate, New York Agricultural Experiment Station

12:00 Lunch

1:30 p.m. Tour of Small Fruit Plantations
  Strawberry chemical weed control plots—blueberry and raspberry varieties—diseases and soil management—the new grape pest control program

COUNTRY DANCE FESTIVAL

Alumni Field, Tuesday, 8:00 P. M.
Featuring an Unusual Array of Outstanding Dance Teams and Callers
Admission 50c, Including Federal Tax

Bowker Auditorium

4:00 Massachusetts People and World News
William G. Avirett, Education Director,
New York Herald Tribune

Wednesday, July 21

Bowker Auditorium

**Beatrice E. Billings, State Home Demonstration Leader,
U. of M., Presiding**

9:30 a.m. Singing
Mrs. Edward Samplatsky and Mrs. Anton Supik,
Westfield Leaders,
9:45 Your Country and Ours
Short talks by graduate students from China, Egypt,
India, and Turkey
10:30 How Fires Get Started (demonstration)
Ernest W. Williams, Loss Prevention Department,
United Mutual Fire Insurance Company, Boston
11:00 Healthy After Forty
Dr. John F. Conlin
Massachusetts Medical Society, Boston
11:45 Lunch

**State Home Demonstration Council Meeting
Draper Dining Hall
11:45 a. m.
Mrs. Wilfred Hitchcock, Windsor, chairman**

**Dr. Helen S. Mitchell, Dean of School of Home Economics,
U. of M., Presiding**

1:30 p.m. Singing
Mrs. Jeremiah C. Murphy, Westfield, and
Mrs. Merrill B. Steere, Springfield, Leaders
1:45 Feet First
Dr. Joseph Llyveld, Rockland
2:30 Speaker to be announced

**Exhibits of Interest to All Homemakers—Rooms 113-114
Stockbridge Hall**

Fruit Growing

Orchards Near Cold Storage

**Ben Drew, Westford, President, Massachusetts Fruit
Growers Association, Presiding**

9:30 a.m. Exhibits
Power pruners—chain saws—ladders—graders—
storage—conveyor equipment

2:15 p.m. Lunch Hour

1:30 Report on the Size of the Apple Crop
Walter E. Piper, Boston, Division of Markets, Massachusetts Department of Agriculture

1:45 Efficiency in Orchard Operations
Kenneth Robinson, Harvard University and the Pacific Northwest

3:00 Tour of University Orchards
Spraying experiments—chemical thinning plots—laying out a contour orchard—rootstock experiments

Departments Open for Inspection

1. French Hall Green House—open 8:00 a.m. to 5:00 p.m.
2. Labeled Weed Exhibit—located between vegetable green houses—on display all day.
3. Flint Laboratory—open 9:30 to 11:30 a.m. and 2:00 to 4:00 p.m. Equipment used in the commercial dairy plant for the manufacture of pasteurized milk, ice cream, butter, and cheese can be seen. Also testing equipment for the chemical and bacteriological analysis of milk.
4. College Barns—open at all times.
   Six breeds of cattle, two of sheep, two of horses, and one of swine are kept.
5. Goodell Library—open 8:30 a.m. to 5:00 p.m.
   For browsing and reading. Daily newspapers and over 300 magazines are available. Building houses over 100,000 books.
6. Home Economics—Stockbridge Hall, Rooms 113-114. Open 9:30 a.m. to 4:00 p.m. Special exhibits of interests to all members of the family.
7. Poultry Farm—rear of Stockbridge Hall.
   Many young pullets will be on range and many hatched pullets will be in the laying houses. Five breeds are being maintained at the present time. This farm is used primarily for teaching purposes. Facilities including the killing room, egg room, and incubator room will be open for inspection.
8. Publications—entry D, South College—open 9:00 a.m. to 11:30 a.m. and 1:00 p.m. to 4:30 p.m. The Extension Service has over 700 different publications for distribution on agriculture and home economics subjects Inquire at the Extension Service for list.

This Is Your Program for Farm and Home Days

Be Sure and Bring It With You to the Meetings

July 19-20-21

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